

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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AUTOSTORE SYSTEM INC.,  
Petitioner,

v.

OCADO INNOVATION LIMITED,  
Patent Owner.

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IPR2022-00443  
Patent 10,913,602 B2

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Before RICHARD H. MARSCHALL, JASON W. MELVIN, and  
RYAN H. FLAX, *Administrative Patent Judges*.

MARSCHALL, *Administrative Patent Judge*.

DECISION  
Denying Institution of *Inter Partes* Review  
35 U.S.C. § 314

Petitioner, Autostore System Inc. (“Petitioner”), filed a Petition requesting *inter partes* review of claims 1–18 (the “challenged claims”) of U.S. Patent No. 10,913,602 B2 (Ex. 1001, “the ’602 patent”). Paper 1 (“Pet.”). Ocado Innovation Limited (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

We have authority to determine whether to institute *inter partes* review. See 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2021). *Inter partes* review may not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Upon consideration of the evidence and arguments in the record, we decline to institute *inter partes review* of the ’602 patent.

## BACKGROUND

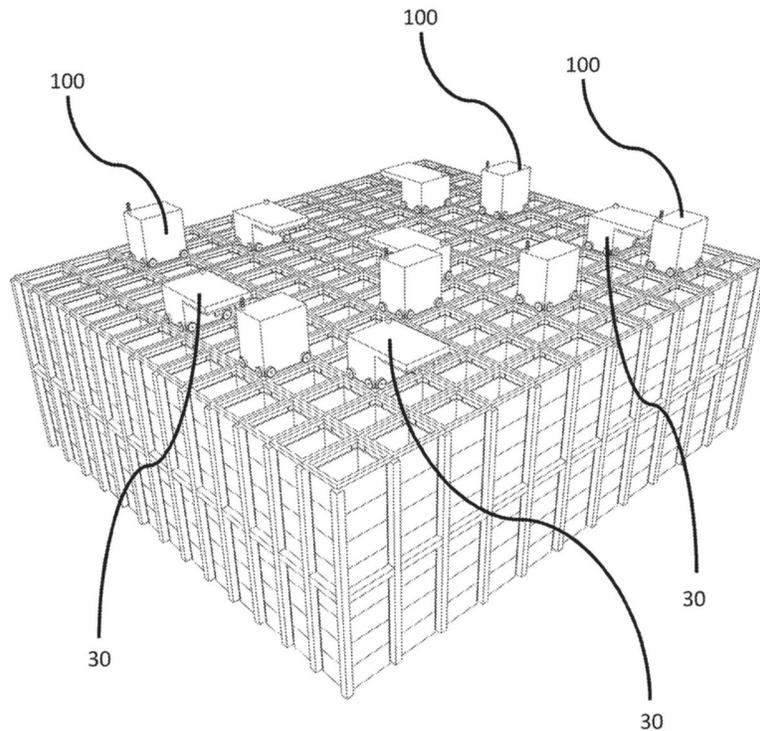
### *A. Related Proceedings*

The parties identify the following district court cases as related matters: *Ocado Innovation Ltd. et al. v. AutoStore AS et al.*, No. 1:21-cv-00041 (D.N.H.); *AutoStore Technology AS v. Ocado Central Services Ltd.*, No. 2:20-cv-00494 (E.D. Va.). Pet. 16; Paper 4, 1. The parties also identify the following Board proceedings as related matters: PGR2021-00038, IPR2021-00412, IPR2021-00311, IPR2021-00398, and IPR2021-00274. Pet. 16; Paper 4, 1. In addition, Patent Owner identifies the following administrative proceeding before the International Trade Commission as a related matter: *In re Certain Automated Storage and Retrieval Systems, Robots, and Components Thereof*, Inv. No. 337-TA-1228 (ITC Investigation instituted on November 2, 2020). Paper 4, 1.

*B. The '602 Patent*

The '602 patent relates to a “storage system and a load handling device for lifting and moving containers” in a storage system. Ex. 1001, code (57). The storage system includes stacks of containers stacked on top of one another three-dimensionally in columns and rows with “a plurality of rails or tracks arranged in a grid pattern above the stacks of containers.” *Id.* at 1:30–32, code (57). The load handling device moves laterally on the rails above the stacks of containers so that the vehicle handling device can retrieve containers from above, which saves space compared to storage systems using vehicles along aisles between the rows of containers. *Id.* at 1:29–34, code (57). The '602 patent acknowledges that using multiple load handling vehicles on rails above containers was known in the art and seeks to improve upon such systems by employing load handling devices with smaller footprints to minimize “instances in which the optimum movement path for one device is hindered by the presence of other devices.” *Id.* at 4:57–60, 5:32–38, 8:10–23, Figs. 1–4. To achieve this goal, the '602 patent discloses a load handling vehicle that “occupies the space above only one stack of containers in the frame,” in contrast to prior art vehicles that occupied the spaces above two stacks of containers. *Id.* at 5:38–42.

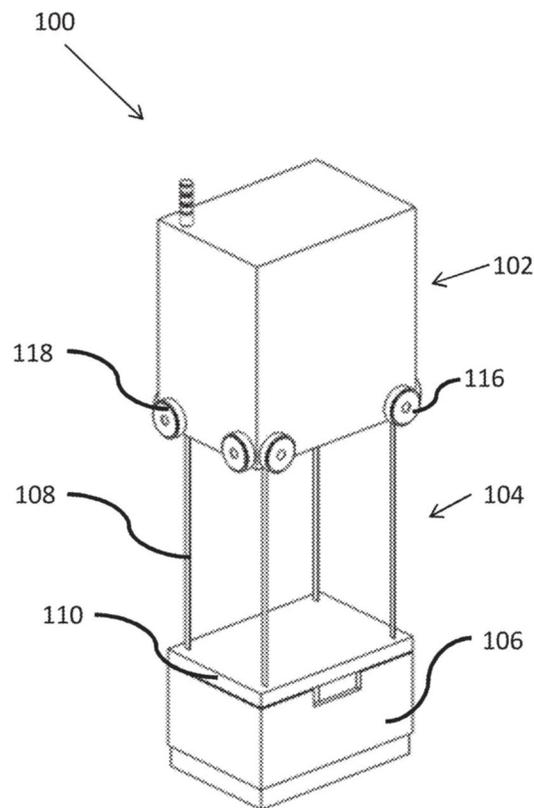
Figure 7 of the '602 patent shows a comparison of the prior art load handling devices and the devices that are the focus of the '602 patent. Figure 7 is reproduced below.



**FIG. 7**

Figure 7 “is a schematic perspective view of a storage system comprising a plurality of known load handler devices” and a plurality of load handling devices consistent with the disclosed invention. Ex. 1001, 8:35–39, 9:41–45. More specifically, Figure 7 shows “prior art cantilever-type load handling devices 30” that “occupy two stack spaces compared to the taller but smaller-footprint devices 100 of the invention.” *Id.* at 9:41–48.

Figure 5 of the '602 patent shows further details of load handling device 100, and is reproduced below.



**FIG. 5**

Figure 5 “shows a load handling device 100 according to an embodiment of the invention.” Ex. 1001, 8:63–65. Load handling device 100 includes vehicle 102 equipped with winch or crane mechanism 104 that lifts containers 106 using winch cables 108 and grabber plate 110. *Id.* at 8:64–9:4. Figure 5 also shows wheels 116, 118 used to move vehicle 102 laterally in the X- or Y-direction along rails above containers 106. *Id.* at 9:7–11. Wheels 116, 118 move vertically such that only one set of wheels may contact the rails at one time. *Id.* at 9:12–15.

The ’602 patent describes wheels 116, 118 as “arranged around the periphery of a cavity or recess 120” formed within the lower part 114 of vehicle 102. *Id.* at 9:16–18, Fig. 6A. Recess 120 can accommodate the

entire container 106, such that it remains clear of the rails beneath vehicle 102 without interfering with lateral movement. *Id.* at 9:18–22. Once vehicle 102 reaches a desired destination, crane mechanism 104 lowers container 106 and grabber plate 110 releases container 106. *Id.* at 9:22–26. The '602 patent describes housing all “significant bulky components” in upper part 112 of vehicle 102, which allows for a vehicle 102 footprint only slightly larger than container 106 by virtue of wheels 116, 118. *Id.* at 9:27–36.

### *C. Challenged Claims*

Petitioner challenges claims 1–18 (all claims) of the '602 patent, of which claims 1 and 12 are independent. Independent claim 1 is reproduced below with emphasis and annotations added to limitations addressed in our analysis below:

1. A storage system comprising:
  - a first set of parallel rails or tracks extending in an X-direction, and a second set of parallel rails or tracks extending in a Y-direction transverse to the first set of rails or tracks in a substantially horizontal plane to form a grid pattern having a plurality of grid spaces;
  - a plurality of stacks of containers located beneath the first and second set of rails or tracks, and arranged such that each stack is located within a footprint of a single grid space; and
  - a multiplicity of load handling devices, wherein each load handling device includes:
    - a wheel assembly having a first set of wheels for engaging with the first set of rails or tracks to guide device movement in the X-direction and a second set of wheels for engaging with the second set of rails or tracks to guide device movement in the Y-direction, such that each load handling device is configured to selectively move laterally in the X- and Y-directions, above the plurality of stacks on the first and second sets of rails or tracks[;]

- a container-receiving space arranged to be located above the first and second sets of rails or tracks for accommodating a container when received from the plurality of stacks[;]
- a lifting device arranged to lift the container from a stack of the plurality of stacks into the container-receiving space, and
- an external housing that is shaped substantially in a cuboid having two sides facing the X-direction, two sides facing the Y-direction, and a top facing a Z-direction, such that the external housing substantially encloses the container-receiving space from above and on all four sides of the load handling device, **a side of the external housing facing the Y-direction extending no further, in the Y-direction, than the first set of wheels on that side of the load handling device, and a side of the external housing facing the X-direction extending no further, in the X-direction, than the second set of wheels on that side of the load handling device** [No Extension limitation], such that a load handling device of the multiplicity of load handling devices will **occupy a grid space** [Grid Space limitation] and **will not obstruct a load handling device of the multiplicity of load handling devices occupying or traversing an adjacent grid space in the X-direction and will not obstruct a load handling device of the multiplicity of load handling devices occupying or traversing an adjacent grid space in the Y-direction** [No Obstruction limitation].

Ex. 1001, 12:30–13:10 (emphasis and annotations added).

*D. Asserted Grounds of Unpatentability*

Petitioner challenges claims 1–18 on the following grounds (Pet. 17):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–5, 8, 9, 11–16	102	Hognaland <sup>1</sup>
1–5, 8, 9, 11–16	103	Hognaland

<sup>1</sup> WO 2014/090684 A1, published June 19, 2014 (“Hognaland,” Ex. 1005).

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
6, 7, 10, 17, 18	103	Hognaland, Lert <sup>2</sup>

Petitioner supports its challenges with a declaration from Dr. Stephen Derby. Ex. 1003. Patent Owner supports its arguments and evidence with a declaration from Dr. Brian Pfeifer. Ex. 2020.

#### ANALYSIS

##### *A. The Level of Ordinary Skill in the Art*

The level of ordinary skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). The person of ordinary skill in the art is a hypothetical person presumed to have known the relevant art at the time of the invention. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In determining the level of ordinary skill in the art, we may consider certain factors, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *Id.*

Petitioner contends, with accompanying declaration testimony, that a person having ordinary skill in the art “has a Master’s degree in Mechanical Engineering or Robotics and at least three to four years of experience working as an engineer in the field of AS/RS [Automated Storage and Retrieval Systems].” Pet. 31–32 (citing Ex. 1003 ¶ 74). Petitioner argues in the alternative that one of ordinary skill in the art “has at least a Bachelor’s

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<sup>2</sup> US App. No. 2010/0316469, published December 16, 2010 (“Lert,” Ex. 1006).

degree in Mechanical Engineering, and at least four to five years of experience working as an engineer in the field of AS/RS.” *Id.*

Patent Owner argues that “the level of ordinary skill in the art is ‘at least a bachelor’s degree in mechanical engineering, and at least two to three years’ experience working in the field of the design of robotic vehicles for material handling system[s].” Prelim. Resp. 25 (citing Ex. 2020 ¶ 74).

Patent Owner contends that the parties agreed that this level of skill applies to Hognaland in a related ITC proceeding, and should be adopted here. *Id.* (citing Ex. 2012, 19).

We note that the parties’ respective proposals overlap considerably, with Petitioner’s alternative proposal nearly identical to Patent Owner’s proposal. We need not resolve which proposal most closely aligns with the level of ordinary skill in the art here, however, because even if we adopt Petitioner’s proposal we would come to the same ultimate conclusion that Petitioner has failed to satisfy its burden of showing a reasonable likelihood of establishing the unpatentability of any of the challenged claims.

#### *B. Claim Construction*

In *inter partes* reviews, the Board interprets claim language using the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), as described in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b). Under that standard, we generally give claim terms their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1313–14. Although extrinsic evidence, when available, may also be useful when construing claim terms

under this standard, extrinsic evidence should be considered in the context of the intrinsic evidence. *See id.* at 1317–19.

Petitioner proposes constructions for the terms “wheel hub motor” and “occupy a grid space.” Pet. 32–39. Patent Owner proposes different constructions for both terms. Prelim. Resp. 26–30. The “wheel hub motor” limitation only appears in dependent claims and we need not reach the merits of Petitioner’s allegations as to those claims in order to determine whether to institute an *inter partes* review. *See id.* at 29. Accordingly, we do not address the merits of the parties’ claim destruction dispute as to “wheel hub motor.” *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (stating that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

As to “occupy a grid space” in independent claim 1 and “occupying a grid space” in independent claim 12 (collectively, the “Grid Space” limitations), Petitioner argues that we should construe the limitations as requiring a load handling device that occupies “only a single grid space in the storage system.” Pet. 33. Petitioner contends that “the specification consistently describes the invention as limited to a load handling devi[c]e that occupies only a single grid space” and touts the benefits of the device’s smaller footprint. *Id.* at 34–35. Petitioner also contends that the No Obstruction limitation reinforces this construction by prohibiting obstruction of another load handling device occupying or passing by “the adjacent grid space in both the X- and Y- directions.” *Id.* at 37.

Patent Owner argues that we should give the Grid Space limitations their ordinary and customary meaning, without any formal construction. Prelim. Resp. 26. Patent Owner contends that we should not adopt Petitioner’s contention because it would render the No Extension and No Obstruction limitations superfluous if, as Petitioner allegedly contends, satisfying the Grid Space limitations would also satisfy these other limitations. *Id.* at 26–27. Patent Owner also argues that the specification fails to support Petitioner’s construction because it describes “the robot as occupying substantially a single grid space.” *Id.* at 28 (citing Ex. 1001, 5:5–6, 7:6–8).

We need not formally construe the Grid Space limitations or resolve the dispute between the parties, because consideration of other limitations leads us to conclude that Petitioner fails to meet its burden of showing a reasonable likelihood of showing the unpatentability of the challenged claims.

### *C. Anticipation by Hognaland*

Petitioner argues that Hognaland anticipates claims 1–5, 8, 9, and 11–16. Pet. 17, 40–82. Patent Owner disagrees. Prelim. Resp. 31–44, 53–63. We begin our analysis with an overview of Hognaland, followed by our discussion of the arguments.

#### *1. Overview of Hognaland*

Hognaland discloses “a remotely operated vehicle or robot for picking up storage bins from a storage system.” Ex. 1005, code (57). Hognaland describes the same cantilever-type prior art vehicle that the ’602 patent describes, and seeks to provide an improved vehicle. *Id.* at 1:5–35, Figs. 1–2. More specifically, Hognaland seeks to “provide a vehicle/robot with

higher stability properties, higher maximum handling weights, a more effective use of available space during operation and a less time consuming lifting and transporting process of storage bins.” *Id.* at 1:35–38. To achieve these goals, Hognaland discloses a vehicle with one set of wheels “arranged fully within the vehicle body.” *Id.* at 2:19–21. Hognaland’s vehicle has a body that covers less than or equal to the width of a storage column (grid space) in one direction (the X-direction) and covers some of the area of adjacent storage columns in the opposite direction (the Y-direction). *Id.* at 2:38–3:3.

Hognaland’s Figure 3 is reproduced below.

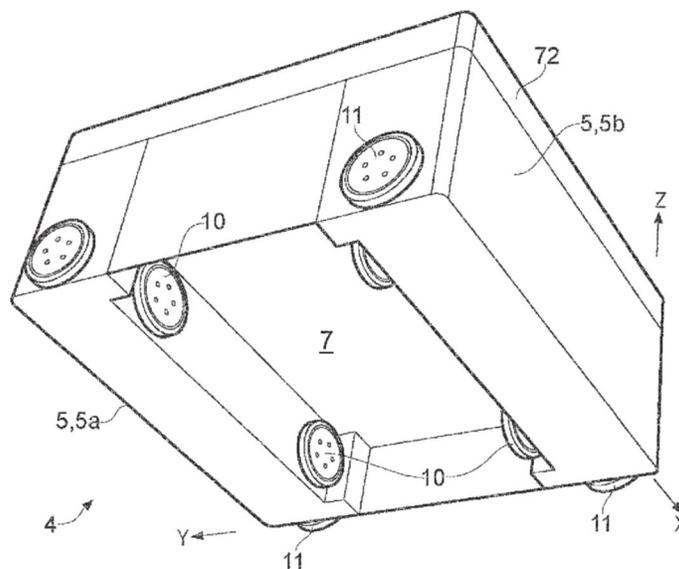


FIG. 3

Figure 3 “is a perspective base view of a remotely operated vehicle according to the present invention.” Ex. 1005, 4:39–40. Figure 3 shows rectangular vehicle body or framework 4 with central cavity 7 within body 4. *Id.* at 5:17–19. Figure 3 also shows top lid 72 covering the top part of body 4, a first set of four wheels 10 mounted inside cavity 7 and a second set of four wheels 11 mounted to the exterior walls of body 4. *Id.* at 5:19–22.

Vehicle body 4 also includes side parts 5, 5a, 5b arranged on both sides of the cavity 7 along the Y-axis shown in Figure 3. *Id.* at 5:23–27. Cavity 7 contains a lifting device and enough space to completely contain the largest storage bin 2 intended to be picked up by robot 1. *Id.* at 5:27–29.

Hognaland’s Figure 9 is reproduced below.

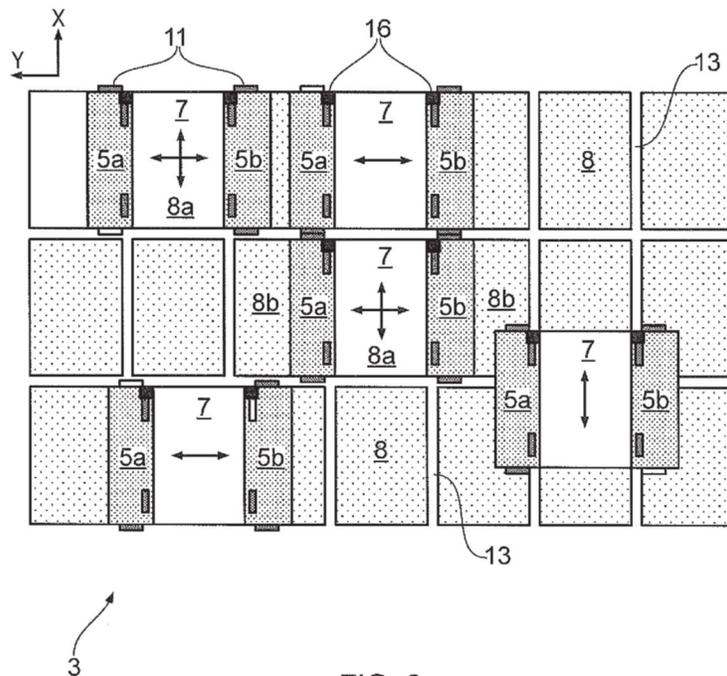


FIG. 9

Figure 9 “is a schematic top view of a remotely operated vehicle moving on a two[-]dimensional matrix of supporting rails.” 5:12–13. Figure 9 shows robots 1 riding on supporting rails 13 above storage columns 8. *Id.* at 6:1–6, 6:35–37. With robot 1 exactly above storage column 8 as shown in the upper left corner of Figure 9, robot 1 can move in either the X- or Y-direction as shown by the arrows on robot 1. *Id.* at 6:37–41. Figure 9 also shows that, once centered over storage column 8, robot 1 side parts 5a, 5b of the vehicle body extend into adjacent storage columns 8 in the Y-direction, but no part of vehicle body extends into adjacent storage columns 8 in the X-direction. *Id.* at 4:28–31, 6:19–24, 6:29–30. Hognaland emphasizes that

such an “arrangement is more space efficient relative to the prior art” because the wheels do “not give any additional extensions in at least one of the two robot[-]moving directions (X and Y).” *Id.* at 4:28–30.

## 2. *The Parties’ Positions*

The parties raise the same arguments with respect to the nearly identical limitations found in independent claims 1 and 12. *See* Pet. 40–64 (addressing claim 1), 77–80 (addressing claim 12); Prelim. Resp. 31–44 (addressing claims 1 and 12 together in arguing that Hognaland fails to anticipate the claims). We will follow the same approach here and focus on the language of claim 1 for ease of reference.

As to the Grid Space limitation, Petitioner does not expressly argue that Hognaland’s vehicle shown in its figures, which extends in a Y-direction into adjacent grid spaces, meets the requirements of the limitation. Pet. 56–59. Instead, Petitioner focuses on other portions of Hognaland emphasizing that it seeks more effective use of space and does not extend in the X-direction beyond the space of one storage column as suggestive that it also discloses not extending to adjacent grid spaces in the Y-direction. *Id.* at 56–57. Petitioner also argues that Hognaland discloses wheels that “can be arranged in the lower corners of the vehicle and that “[p]roduction of smaller sized robots [] is also rendered possible.” *Id.* at 57 (citing Ex. 1005, 3:9–12, 4:31–32). According to Petitioner, these statements, coupled with Hognaland’s general statement that modifications to Hognaland’s illustrated embodiments that are apparent to one of ordinary skill in the art are within the scope of Hognaland’s invention, imply “that the full scope of the disclosure includes a device that covers only a single grid space in both X- and Y-directions.” *Id.* (citing Ex. 1003 ¶ 124; Ex. 1005, 7:18–21).

Petitioner contends that one of ordinary skill in the art “would understand and envisage that the same disclosures may be applied (along with placing both sets of wheels on the outside of the body . . .) to construct a robot that covers only a single grid space.” *Id.* at 57–58 (citing Ex. 1003 ¶ 124).

Petitioner also contends that a prior Institution Decision addressing disclosures that are essentially the same as Hognaland already concluded that Hognaland covers only a single grid space. *Id.* at 58–59 (citing Ex. 1012, 27 (IPR2021-00412 Institution Decision)).

As to the No Obstruction<sup>3</sup> limitation, Petitioner argues that “since the device covers only a single grid space, it would not obstruct a load handling device occupying or traversing an adjacent grid space in either the X- or Y-directions, as claimed.” Pet. 58 (citing Ex. 1003 ¶ 124). As to the No Extension<sup>4</sup> limitation, Petitioner argues that “[t]he ’602 patent admits that this limitation was in the prior art” because the prior art device depicted in its figures show wheels in the required location. *Id.* at 61 (citing Ex. 1001, 3:5–37, Figs. 3A–3C; Ex. 1003 ¶ 128). Petitioner contends that Hognaland discloses this limitation because it discloses the prior art vehicle, and also suggests locating wheels near the lower corners of its robot, which one of ordinary skill in the art would “understand and envisage” as “wheels would be on the outside faces of the device near the corners.” *Id.* at 61–62 (citing Ex. 1003 ¶ 129; Ex. 1005, 3:9–12, Fig. 2). Petitioner also argues that a prior

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<sup>3</sup> This limitation in claim 1 requires a device that “will not obstruct” another load handling device “occupying or traversing an adjacent grid space” in either the X- or Y-direction.

<sup>4</sup> This limitation in claim 1 requires “a side of the external housing” “extending no further” than the set of wheels on that side of the device in either the X-direction or the Y-direction.

Institution Decision addressing Hognaland’s disclosure in a written description context supports Petitioner’s position here. *Id.* at 62–63 (citing Ex. 1003 ¶ 130; Ex. 1013, 18, 21–22).

Patent Owner argues that Hognaland fails to disclose a robot that expressly or inherently meets the Grid Space limitation under Petitioner’s construction because Hognaland discloses a robot that covers more than one grid space in the Y direction. Prelim. Resp. 31–37. As to the No Obstruction and No Extension limitations, Patent Owner argues that Hognaland does not disclose either limitation. *Id.* at 53–56. Patent Owner contends that “Hognaland only discloses a robot with two sections and at least one set of wheels fully within the vehicle body,” with two side parts that must necessarily extend beyond those wheels. *Id.* at 55–56 (citing Ex. 2012, 62; Ex. 2020 ¶¶ 60–71, 112). According to Patent Owner, Hognaland’s extensions will obstruct adjacent grid spaces in the Y-direction on both sides of the device and will extend beyond the set of wheels located within the vehicle body, such that Hognaland fails to disclose the No Obstruction and No Extension limitations. *See id.*; *see also id.* at 58–63 (providing further arguments that Hognaland fails to disclose both limitations).

### 3. Discussion

We agree with Patent Owner that Petitioner fails to establish adequately that Hognaland discloses either the No Obstruction limitation or the No Extension limitation. As to the No Obstruction limitation, Petitioner premises its argument on the assertion that Hognaland discloses a vehicle occupying only one grid space, but the only embodiment Hognaland discloses shows a vehicle occupying portions of two adjacent spaces that

obstruct those spaces in the Y-direction and fail to meet the requirements of the No Obstruction limitation. *See* Pet. 56–58; Ex. 1005, 2:38–3:3, Fig. 9. Petitioner’s reliance on other text in Hognaland that allegedly “implies” that Hognaland discloses a device with no obstructions in the Y-direction lacks adequate support. For example, Petitioner relies on Hognaland’s statement that the wheels can be placed on the lower corners of the vehicle and that alterations may enable smaller-sized robots. Pet. 57 (citing Ex. 1005, 3:9–12, 4:31–32). Placing wheels near the lower corners of the vehicle merely describes the existing Hognaland device shown in Hognaland’s figures, a device that fails to meet the claim limitations. *See* Ex. 1005, 3:9–12. Neither this description of Hognaland’s device nor the general statement that Hognaland’s approach enables smaller-sized robots, taken alone or together, suggest an express or inherent disclosure of an embodiment without any obstruction of adjacent grid spaces in the Y-direction that meets the No Obstruction limitation.

Similarly, Petitioner makes unconvincing arguments in support of its contention that Hognaland discloses the No Extension limitation. First, Petitioner argues that Hognaland discloses the limitation because the prior art Hognaland depicts shows both sets of wheels on the outside of the vehicle housing in a manner that satisfies the limitation. Pet. 61–62. Even if the prior art Hognaland depicts in Figure 2 does disclose the No Extension limitation in isolation, the remainder of Petitioner’s anticipation argument relies on Hognaland’s disclosed invention, not the prior art, and Petitioner may not pick and choose aspects of the prior art and the disclosed invention to establish anticipation. *See Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008) (“[U]nless a reference discloses within the four

corners of the document not only all of the limitations claimed but also all of the limitations arranged or combined in the same way as recited in the claim, it cannot . . . anticipate.”); Ex. 1005, Fig. 2.

Second, Petitioner again improperly relies on a general statement that wheels may be arranged near the lower corners of the vehicle as evidence of a disclosure that the wheels would be placed on the *outside* faces of the device near the corners. Pet. 62 (quoting Ex. 1005, 3:9–12). Suggesting wheels arranged “near the corners” of a device does not necessarily disclose wheels on an outside face of a device when the wheels can also be placed within a cavity of the device, as Hognaland discloses. *See* Ex. 1005, Fig. 3. This statement from Hognaland describes its disclosed embodiment, with wheels disposed within a cavity “near the lower corners of the vehicle,” not an alternative embodiment with wheels on the outside of the vehicle. *Id.* at 3:9–12, Fig. 3. Both parties appear to agree that Hognaland’s disclosed embodiment shown in Figure 3 above, with wheels arranged around cavity 7, does not meet the No Extension limitation because that embodiment shows extensions 5, 5a, 5b extending beyond wheels 10. *See id.* Petitioner’s attempt to read language in Hognaland that describes an embodiment that fails to satisfy the No Extension limitation (wheels mounted within a cavity on the inside of the vehicle) in a manner that does satisfy the limitation (wheels on the outermost face of the vehicle) lacks support in the record.

Based on the foregoing, we determine that Petitioner has not established sufficiently that Hognaland anticipates independent claims 1 or 12.<sup>5</sup> In addition, because Petitioner’s anticipation challenges to the

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<sup>5</sup> In their anticipation and obviousness arguments, both parties rely on analyses from other decisions before the Board and the ITC for support.

dependent claims rely on the challenges to the independent claims, for the same reasons we determine that Petitioner has not established sufficiently that any of the dependent claims are anticipated by Hognaland. *See* Pet. 65–77, 80–82.

*D. Obviousness Over Hognaland*

Petitioner argues, as an alternative to its anticipation challenge, that Hognaland renders claims 1–5, 8, 9, and 11–16 obvious. Pet. 17, 40–82. Patent Owner disagrees. Prelim. Resp. 44–53, 64–66. We begin with an overview of the parties’ positions, followed by our discussion of those arguments.

*1. The Parties’ Positions*

Petitioner argues that one of ordinary skill in the art “would have been motivated to modify Hognaland’s devices so that they will occupy only a single grid space and thereby not obstruct devices occupying or traversing an adjacent grid space in the X- and Y-directions.” Pet. 59 (citing Ex. 1003 ¶ 126). According to Petitioner, “[g]iven Hognaland’s explicit goal and disclosures, particularly that the ‘vehicle body covers . . . equal to the lateral cross sectional area of one central storage column’ in the X-direction and that the wheels can be arranged in the lower corners of the vehicle, [Ex.] 1005, 3:9–12, a PHOSITA would have readily understood that this space-saving configuration could be applied to the side of the device facing the Y-

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Those decisions do not mandate any particular result or bear directly on the specific issues we address in this Decision because (1) the prior decisions are not binding; (2) the decisions allegedly analyze disclosures similar to Hognaland, and do not analyze the ’602 patent, the specific limitations at issue here, or the specification of the ’602 patent; and (3) to the extent the decisions are relevant, they appear to bear on the Grid Space limitation issues, which we do not reach in our anticipation and obviousness analyses.

direction so that the system makes more effective use of available space during operation.” *Id.* at 59–60 (citing Ex. 1003 ¶ 126). Petitioner further argues that Hognaland supplies the motivation for the modification because it states that certain arrangements are “more space efficient relative to the prior art robot . . . since the roll[ing] means *does not give any additional extensions* in at least one of the two robots moving directions (*X and Y*).” *Id.* at 60 (quoting Ex. 1005, 4:29–31 (emphasis Petitioner’s)). Petitioner posits that one of ordinary skill in the art would read the reference to “*at least one of the two robot moving directions*” as including X- and Y- directions, suggesting “reducing the device such that it does not” extend beyond a single grid space in the Y-direction as well as the X-direction. *Id.* (citing Ex. 1003 ¶ 127) (emphasis Petitioner’s).

As to the No Extension limitation, Petitioner argues that once Hognaland’s device is modified in the manner Petitioner proposes to meet the other limitations, “the side of the external housing facing the Y-direction would extend no further in the Y-direction than the first set of wheels on that side of the device, as claimed.” Pet. 63 (citing Ex. 1003 ¶ 131). This arrangement, according to Petitioner, “would be a necessary result of the modification” and would remain consistent with Hognaland’s teaching of rolling means near the lower corners of the vehicle to allow more vehicle stability. *Id.* (citing Ex. 1003 ¶ 131; Ex. 1005, 3:9–12). In the alternative, Petitioner argues that the No Extension limitation would have been obvious because one of ordinary skill in the art would have modified the placement of the wheels on the inside of the housing by placing them on the outside as shown in the prior art disclosed in Hognaland. *Id.* at 63–64 (citing Ex. 1003 ¶ 132). Petitioner contends that one of ordinary skill in the art “would have

a high degree of success making this modification because it involves a simple reduction in the device’s footprint in the Y-direction, which could be accomplished by reducing or reutilizing otherwise unused space.” *Id.* at 64 (citing Ex. 1003 ¶ 132).

Patent Owner argues that Petitioner fails to supply an adequate motivation or reasonable expectation of success to modify Hognaland to meet the Grid Space, No Obstruction, and No Extension limitations. *See* Prelim. Resp. 45–53, 58–63. Patent Owner contends that Hognaland discloses a specific embodiment that seeks to achieve specific goals, such as higher stability properties and more effective use of space, and nothing in Hognaland suggests that further modifications such as those proposed by Petitioner are necessary or desirable to achieve those goals. *Id.* at 45–46 (citing Ex. 2020 ¶¶ 101–102). Patent Owner also argues that Hognaland teaches away from Petitioner’s proposed modifications because reducing Hognaland’s footprint as Petitioner proposes would reduce the stability Hognaland seeks to enhance, which also undermines any reasonable expectation of success. *Id.* at 47 (citing Ex. 2020 ¶ 103), 51–53 (citing Ex. 2020 ¶¶ 108–109). Patent Owner also contends that Petitioner admitted in other proceedings that such alterations would require “substantial modification.” *Id.* at 52–53 (citing Ex. 2012, 75; Ex. 2014, 14; Ex. 2016, 18–19; Ex. 2020 ¶ 109); *see also id.* at 64–66 (providing further arguments that Petitioner fails to establish that the No Obstruction and No Extension limitations would have been obvious).

## 2. Discussion

We agree with Patent Owner that Petitioner fails to establish adequately that it would have been obvious to modify Hognaland to disclose

both the No Obstruction and No Extension limitations. Petitioner starts from a difficult position in its single-reference obviousness challenge because Hognaland fails to disclose at least two of the limitations in the challenged claims. Hognaland's vehicle includes "side parts" that extend from a central cavity and into adjacent grid spaces, which results in a device that fails to meet the No Obstruction and No Extension limitations. *See* Ex. 1005, 2:38–3:3, Figs. 3, 9. Rather than rely on other documentary evidence suggesting the desirability or obviousness of the proposed modifications, Petitioner argues that Hognaland itself provides the requisite motivation to modify its embodiments into a new, modified embodiment Hognaland never expressly discloses. *See* Pet. 59–60, 63–64.<sup>6</sup> Petitioner's arguments read too much into Hognaland's disclosure, and a more complete review of Hognaland's approach and stated advantages over the prior art undermines rather than supports Petitioner's proposed modifications.

Hognaland addresses the shortcomings of the same prior art as the '602 patent and seeks to provide an improved load handling vehicle with different features than the vehicle the '602 patent discloses and claims. *See* Ex. 1001, Figs. 3A–3C (showing cantilever-type prior art vehicle); Ex. 1005, Fig. 2 (same). While the '602 patent discloses a vehicle that does not extend into or obstruct adjacent grid spaces, Hognaland not only discloses a vehicle with "side parts" that extend into and obstruct adjacent grid spaces, it stresses the advantages of its design. *See* Ex. 1005, 2:38–3:3, 4:25–28. Hognaland employs a set of wheels 10 within cavity 7, i.e. within the vehicle

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<sup>6</sup> Petitioner also relies on its declarant, but that testimony largely repeats the arguments based on Hognaland, and fails to cite any other evidence or provide further rationales for the obviousness of these limitations. *See* Ex. 1003 ¶¶ 126–127, 131–132.

body, that results in side parts extending outside wheels 10 and into adjacent grid spaces. *See id.* at 2:19–20, 2:38–3:3, 5:17–24, Figs. 5, 9. Hognaland states that “[b]y arranging at least one set of vehicle rolling means fully within the vehicle or robot body *additional stability is obtained* during the lifting process since the rolling means is situated closer to the storage bin to be lifted” and the same “arrangement *reduces the total load* on the lifting device.” *Id.* at 4:25–28 (emphasis added). Petitioner’s stated reasons for its proposed modification fail to address adequately how placing the wheels on the outside of the vehicle and removing the side parts, as Petitioner proposes, impacts the advantages the Hognaland design provides. *See id.* Instead, Petitioner ignores these advantages and fails to explain adequately why one of ordinary skill in the art would be motivated to make Petitioner’s proposed modifications when those modifications would appear to decrease the stability and reduction in load provided by the existing Hognaland design.

Further analysis of the portions of Hognaland that Petitioner relies upon fail to reveal any support for a modification that overcomes the loss of the advantages in Hognaland’s existing design. For example, Petitioner argues that Hognaland teaches that not extending its housing into the X-direction saves space, which further suggests removing Hognaland’s side parts that extend in the Y-direction as well. *See Pet.* 59–60. Hognaland, however, does not suggest eliminating extensions in the Y-direction or other specific steps necessary to further save space; rather, Hognaland describes its existing vehicle as already incorporating a space-saving design. *See Ex.* 1005, 4:28–31. Similarly, as discussed above in the anticipation analysis, the fact that Hognaland suggests moving the wheels to lower

corners of the vehicle does not suggest moving them to the outside of the vehicle or to remove the side parts that extend into adjacent grid spaces. *See* Pet. 59, 62. Instead, Hognaland describes its existing embodiment, with wheels within cavity 7 and the vehicle housing, as already featuring wheels arranged in the lower corners of the vehicle, for increased stability. *See* Ex. 1005, 3:9–12. The statement as to the location of the wheels does not support Petitioner’s proposed modification, which would undermine the stability Hognaland’s existing embodiment provides. *See id.* at 4:25–28.

Finally, Petitioner suggests that one of ordinary skill in the art would simply adopt the wheel location shown in the prior art on the outside of the vehicle body and apply that approach to Hognaland’s design. *See* Pet. 63–64. Such a modification again ignores the loss of the advantages provided by Hognaland’s existing design and fails to explain how, specifically, to implement the modification with any expectation of success. *See id.* at 64 (arguing without further explanation that the modification would “have a high degree of success . . . because it involves a simple reduction in the device’s footprint in the Y-direction, which could be accomplished by reducing or reutilizing otherwise unused space”). Without any explanation as to how the final design implements Petitioner’s proposed structural changes and moves the structures housed in Hognaland’s extensions to another location that allows for a smaller footprint, we have little guidance, and inadequate support, for Petitioner’s argument that its proposed modifications would have a high degree of success. *See id.*

Based on the foregoing, Petitioner fails to establish adequately that one of ordinary skill in the art would have been motivated to modify Hognaland in the manner Petitioner proposes. Accordingly, we determine

that Petitioner has not shown a reasonable likelihood of establishing the unpatentability of claims 1 and 12 as obvious over Hognaland.

Petitioner challenges the dependent claims as either obvious over Hognaland, or obvious over Hognaland and Lert. *See* Pet. 65–77, 80–88. All of these challenges rely upon the success of Petitioner’s challenges to independent claims 1 and 12 as either anticipated or obvious over Hognaland. *See id.* Because we conclude that Petitioner fails to make an adequate showing as to the independent claims, its challenges to the dependent claims fail for the same reasons.<sup>7</sup>

#### CONCLUSION

For the reasons above, we deny institution of *inter partes* review.

#### ORDER

Accordingly, it is hereby:  
ORDERED that the Petition is denied as to all challenged claims, and no *inter partes* review is instituted.

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<sup>7</sup> Because we deny institution on the merits, we need not reach Patent Owner’s arguments in support of discretionary denial pursuant to 35 U.S.C. §§ 314(a) and 325(d). *See* Prelim. Resp. 11–25.

IPR2022-00443  
Patent 10,913,602 B2

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