

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ocado Group PLC,
Petitioner

v.

AutoStore Technology AS,
Patent Owner

Case [[UNASSIGNED]]

U.S. Patent No. 10,294,025
TITLE: ROBOT FOR TRANSPORTING STORAGE BINS
Issue Date: May 21, 2019

OCADO GROUP PLC'S PETITION FOR INTER PARTES REVIEW

Mail Stop Patent Board
Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450
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II. PETITIONER’S EXHIBIT LIST

U.S. Patent No. 10,294,025	(EX1001)
Complaint in <i>AutoStore Technology AS v. Ocado Central Services Ltd</i> , Civil Action No. 2:20-cv-00494 (E.D. Va. October 21, 2020)	(EX1002)
U.S. Patent No. 10,577,178	(EX1003)
Great Britain Patent App. No. GB1314313	(EX1004)
Great Britain Patent App. Pub. No. GB2520104	(EX1005)
Petition in <i>Certain Automated Storage and Retrieval Systems, Robots, and Components Thereof</i> , DN 3498 (ITC No. 337-3498), instituted on November 2, 2020.	(EX1006)
Espacenet.net Bibliographic Data page for PCT/GB2014/052273	(EX1007)
Declaration of Dr. Brian Pfeifer	(EX1008)
Norwegian Patent App. No. NO20140773	(EX1009)
PCT App. Pub. No. WO/2014/195901	(EX1010)
PCT App. Pub. No. WO/2005/077789	(EX1011)
U.S. Patent No. 10,294,025, File History – Applicant Remarks (Sep. 27, 2018)	(EX1012)
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U.S. Patent No. 10,294,025, File History – Final Rejection and References Considered by the Examination (Dec. 18, 2018)	(EX1014)
U.S. Patent No. 10,294,025, File History – IDS (Dec. 15, 2016)	(EX1015)
U.S. Patent App. No. 15/905,294, File History –Notice of Allowance (Oct. 22, 2019)	(EX1016)

III. THE TEXT OF THE CHALLENGED CLAIMS

Claim Element Identifier	Text of Claim Element
<i>Claim 1</i>	
Limitation 1 (Preamble)	“1. A remotely operated vehicle assembly for picking up storage bins from an underlying storage system, comprising:”
Limitation 1(a)	“a vehicle body displaying a cavity for receiving a storage bin within the storage system”
Limitation 1(b)	“a vehicle lifting device connected to the vehicle body for lifting the storage bin into the cavity”
Limitation 1(c)	“driving means comprising: a first set of vehicle wheels connected to the vehicle body allowing movement of the vehicle along a first direction within the storage system during use, and [also comprising] a second set of vehicle wheels connected to the vehicle body allowing movement of the vehicle along a second direction in the storage system during use, the second direction being perpendicular to the first direction,”
Limitation 1(d)	“a displacement arrangement coupled to the driving means comprising a displacement motor configured to provide power to displace at least one of the first set of vehicle wheels and the second set of vehicle wheels means between a displaced state where the first or second set of vehicle wheels is displaced away from the underlying storage system during use, and a non-displaced state where the first or second set of vehicle wheels is in contact with the underlying storage system during use,”
Limitation 1(e)	“wherein the displacement motor is situated in a lateral plane above the cavity,”
Limitation 1(f)	“and further configured to generate a power that is converted to a vertically directed pressure force acting on the first or second set of vehicle wheels.”
<i>Claim 18</i>	
Limitation 18 (Preamble)	“18. A storage system for storage of bins, comprising:”
Limitation 18(a)	“the remotely operated vehicle assembly of claim 1,”

Limitation 18(b)	“a vehicle support comprising a plurality of crossing supporting rails directed perpendicular to each other, a bin storing structure supporting the vehicle support, the structure comprising a plurality of storage columns, wherein each of the plurality of storage columns is arranged to accommodate a vertical stack of storage bins.”
Claim 19	“19. The storage system in accordance with claim 18, wherein the plurality of crossing supporting rails are paired to comprise: a first and second rail in the first direction and a third and fourth rail in the second direction.”
Claim 20	“20. The storage system in accordance with claim 18, wherein the lateral cross sectional area of the remotely operated vehicle assembly occupies at most the lateral cross sectional area of one of the plurality of storage columns within the bin storing structure, where the lateral cross sectional area of one of the plurality of storage columns corresponds to the lateral area limited by the distance from a first supporting rail an adjacent supporting rail parallel to the first supporting rail, the distance being measured from the center line of each rail.”

IV. INTRODUCTION

Petitioner Ocado Group PLC (“Ocado”) requests *inter partes* review and cancellation of Claims 1 and 18-20 (“the challenged claims”) of U.S. Patent No. 10,294,025 (EX1001, “the ’025 Patent”).¹ The ’025 Patent was filed as PCT/EP2015/063415 designating the United States on June 16, 2015. On its face, the ’025 Patent claims priority to Norwegian Application NO20140773 (EX1009, “NO/773”), filed on June 19, 2014; the ’025 Patent thus has an effective filing date no earlier than June 19, 2014. However, as discussed *infra* at Section XI.B.1., claims 19 and 20 of the ’025 Patent are not entitled to this date because NO/773 does not disclose the inventions of those claims. Accordingly, the earliest effective filing date with respect to claims 19 and 20 is June 16, 2015.

V. MANDATORY NOTICES

A. Real Parties-in-Interest (37 C.F.R. § 42.8(b)(1))

Petitioner Ocado Group PLC is the real party-in-interest for Petitioner.

¹ The text of the challenged claims is set out in Section III hereto. Citations to exhibits 1001-1016, filed herewith, are in the form EX####. Citations to the Declaration of Brian Pfeifer, Ph.D, P.E., filed herewith as EX1008, are in the form “EX1008” or “PD.”

B. Related Matters (37 C.F.R. § 42.8(b)(2))

1. Judicial Matters

The following judicial matters may affect, or be affected by, this proceeding: *AutoStore Technology AS v. Ocado Central Services Ltd., Ocado Group PLC, Ocado Innovation Ltd., Ocado Operating Ltd., Ocado Solutions Ltd. and Ocado Solutions USA, Inc.*, Civil Action No. 2:20-cv-00494 (E.D. Va.) (“the Ocado Litigation”), filed by AutoStore on October 21, 2020 (EX1002). AutoStore and Ocado are also involved in an investigation before the International Trade Commission styled *Certain Automated Storage and Retrieval Systems, Robots, and Components Thereof*, DN 3498 (ITC No. 337-3498), instituted on November 2, 2020.

2. Administrative Matters

Based on its investigation in Public PAIR, Ocado identifies the following patents and patent applications that claim the benefit of the priority of the filing date of the '025 Patent:

Patent or Application Number	Filing Date
U.S. Patent No. 10,807,796	04-27-2018
U.S. Patent App. No. 15/978,219	05-14-2018

The '025 Patent is a National Stage Entry of PCT/EP2015/063415, filed June 16, 2015 (“PCT/415”). Each of the '025 Patent and PCT/415 claim

foreign priority to NO20140773 (EX1009, “NO/773”), which was filed on June 19, 2014.

C. Designation of Lead and Back-up Counsel (37 C.F.R. § 42.8(b)(3))

Concurrently with this Petition, Ocado is filing a power of attorney appointing the registered practitioners associated with Customer Number 126532, including Stephen J. Elliot (Reg. No. 52,858) and Raffaele A. DeMarco (Reg. No. 54,061), as attorneys to represent Ocado. Ocado designates the following lead and back-up counsel:

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D. Service Information (37 C.F.R. § 42.8(b)(4))

Please direct all correspondence to lead counsel at the address listed above. Ocado also consents to electronic service at the following email addresses:

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VI. FEES

Ocado is concurrently electronically submitting the required fees for this Petition. The Board is authorized to charge Sullivan & Cromwell LLP's deposit account, DA603776, for any fee deficiency.

VII. GROUNDS FOR STANDING

Ocado certifies that the '025 Patent is available for *inter partes* review. Ocado certifies that it is not estopped or barred from requesting *inter partes* review challenging the challenged claims on the grounds identified in this petition.

VIII. IDENTIFICATION OF CHALLENGE AND RELIEF REQUESTED

A. Identification of Prior Art

1. U.S. Patent No. 10,577,178 (EX1003)

U.S. Patent No. 10,577,178 to Lindbo *et al.* (EX1003, "'178 Patent") was filed as Application No. 15/905,294 ("'294 Application") on February 26, 2018. The '294 Application is a continuation of Application No. 14/910,858 (now U.S. Patent No. 10,000,337), filed as Application No. PCT/GB2014/052273 on July 24, 2014. The '178 Patent claims priority to GB App. No. GB1314313.6 (EX1004, "GB/313") to Lindbo *et al.* (EX1003), filed as an application in the United Kingdom on August 9, 2013. (*See* EX1004.)

As shown in the Declaration Brian Pfeifer, Ph.D, P.E. (EX1008, “PD”) at ¶44,² and as summarized in the following table, each claim of the ’178 Patent is supported by the disclosure of GB/313. (EX1008, PD ¶44.)

	GB/313 (EX1004) Support for ’178 Patent Claims
Claim 1	GB/313 (EX1004), 3:4-13; 3:26-27; 5:38-39; 6:10-15; 7:39-8:2; 8:26-34; 10:40-11:1; Figs. 1, 2, 7, 9
Claim 2	<i>Id.</i> 6:1-2; 10:27-30; Figs. 5, 6
Claim 3	<i>Id.</i> 7:5-6
Claim 4	<i>Id.</i> 7:6-9; 12:12-13; Fig. 11
Claim 5	<i>Id.</i> 6:36-38; 10:9-11; Fig. 8
Claim 6	<i>Id.</i> 10:19-21; Fig. 9)
Claim 7	<i>Id.</i> 10:26-27; Fig. 9
Claim 8	<i>Id.</i> 10:22-24; 11:35-12:6; Fig. 9)
Claim 9	<i>Id.</i> 7:37-8:10; 8:26-27; Fig. 7)
Claim 10	<i>Id.</i> 6:10-15; 7:40-8:2; 8:29-34; Fig. 9
Claim 11	<i>Id.</i> 6:10-15; 7:40-8:2; 8:29-34; Fig. 9

² Dr. Pfeifer holds a PhD in Civil Engineering and both an MS and BS in Mechanical Engineering. He is an engineer and inventor who has developed a number of different robotic material handling systems. Dr. Pfeifer is an inventor of 12 issued U.S. patents in the areas of vehicle storage systems, shipping container handling systems, and material handling and storage methods. (PD ¶12 & Appendix I.)

	GB/313 (EX1004) Support for '178 Patent Claims
Claim 12	<i>Id.</i> 6:1-2; 7:5-6; 10:27-30; Figs. 5, 6
Claim 13	<i>Id.</i> 3:4-13; 6:1-2; 6:10-15;7:39-8:2; 10:27-30; Figs. 1,2 5, 6

The '178 Patent is thus entitled to the priority date of GB/313, *see Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375 (Fed. Cir. 2015), and it was effectively filed on August 9, 2013, prior to the earliest effective filing date of the '025 Patent. Accordingly, the '178 Patent is prior art to the challenged claims under at least 35 U.S.C. § 102(a)(2).

2. Great Britain Published Patent Application No. GB1314313 (EX1004)

GB App. No. GB1314313 to Lindbo *et al.* (EX1004, “GB/313”), the priority document for the '178 Patent, was filed as a United Kingdom Application on August 9, 2013. It available to the public when Application No. PCT/GB2014/052273 (“’273 Application”), which also claims priority to GB/313, was published by the World Intellectual Property Organization (“WIPO”) on February 12, 2015. (*See* EX1007 (Espace.net Bibliographic Data page for ’273 Application showing its publication as “W2015019055” on “2015-02-12” and that it claimed priority to “GB29130014313,” GB/313).) GB/313 was further available on May 13, 2015, when as set out in the certified statement of the UK Intellectual Property Office (EX1013): “The contents of patent application GB1314313.6 as

filed on 9 August 2013 were made open to public inspection and . . . images were available to view electronically on the publication of parent application GB1413155.1 (GB2520104) on 13 May 2015.” *See Bruckelmyer v. Ground Heaters, Inc.*, 445 F.3d 1374, 1378-79 (Fed. Cir. 2006) (foreign application became “publicly accessible” and thus was a printed publication when it was available for public inspection in foreign patent office); *In re Wyer*, 655 F.2d 221, 226 (C.C.P.A. 1981) (same). Both of these dates are prior to the earliest effective filing date of claims 19-20 of the ’025 Patent. *See infra* at Section XI.B.1. (PD ¶¶45-46.) GB/313 is thus prior art to at least those under 35 U.S.C. § 102(a)(1).

3. Great Britain Published Patent Application No. GB2520104 (EX1005)

GB App. No. GB2520104 to Lindbo *et al.* (EX1005, “GB/104”), was filed as a United Kingdom Application on July 24, 2014. GB/104 was published on May 13, 2015. (*See supra* at p. 6; EX1005 (showing “Date of A Publication” as “13.5.2015”).) This date is prior to the earliest effective filing date of claims 19-20 of the ’025 Patent. (EX1008, PD ¶¶45-46.) GB/104 is thus prior art to at least those claims under 35 U.S.C. § 102(a)(1).

4. WIPO Publication No. WO 2014/195901 (EX1010)

WIPO Publication No. WO 2014/195901 to Lindbo *et al.* (EX1010, “WO/901”), was filed on June 5, 2014, and published on December 11, 2014. The

filing date of WO/901 is prior to the earliest effective filing date of the '025 Patent.

WO/901 is prior art to the challenged claims under 35 U.S.C. § 102(a)(2).

5. WIPO Publication No. 2005/077789 (EX1011)

WIPO Publication No. WO 2005/077789 to Bianco *et al.* (EX1011, “WO/789”), was filed on January 14, 2005, and published on August 25, 2005.

WO/789 was published eight years prior to the earliest effective filing date of the '025 Patent. WO/901 is prior art to the challenged claims under 35 U.S.C.

§ 102(a)(1).

B. Statutory Grounds of Unpatentability

Ground 1(a): The '178 Patent anticipates claims 1 and 18-20 pursuant to 35 U.S.C. § 102(a)(2).

Ground 1(b): The '178 Patent renders claims 1 and 18-20 obvious to a person of ordinary skill in the art (“POSITA”) pursuant to 35 U.S.C. § 103.

Ground 2(a): GB/313 anticipates claims 19-20 pursuant to 35 U.S.C. § 102(a)(1).

Ground 2(b): GB/313 renders claims 19-20 obvious to a POSITA pursuant to 35 U.S.C. § 103.

Ground 3: The '178 Patent, in light of GB/104, renders claim 19 obvious to a POSITA pursuant to 35 U.S.C. § 103.

Ground 4: WO/901, in light of WO/789 and the knowledge and skill of a POSITA, renders obvious claims 1 and 18-20 pursuant to 35 U.S.C. § 103.

IX. OPENING STATEMENT

The '025 Patent is directed to remotely operated vehicles, or robots, for picking up storage bins from a storage system that uses stacked bins. Such “prior art storage system[s]” have a three-dimensional grid containing storage bins “that are stacked on top of each other.” (Exhibit 1001, 1:18-20.). As shown in Figure 1 of the '025 Patent, the system is constructed as a set of columns interconnected by top rails to form an x/y grid, and has remotely operated robots configured to move in two directions to lift bins from the stacks in the spaces defined by the grid, and move them to other areas. (*Id.* 1:24-27, 35-40, 11:10-61.)

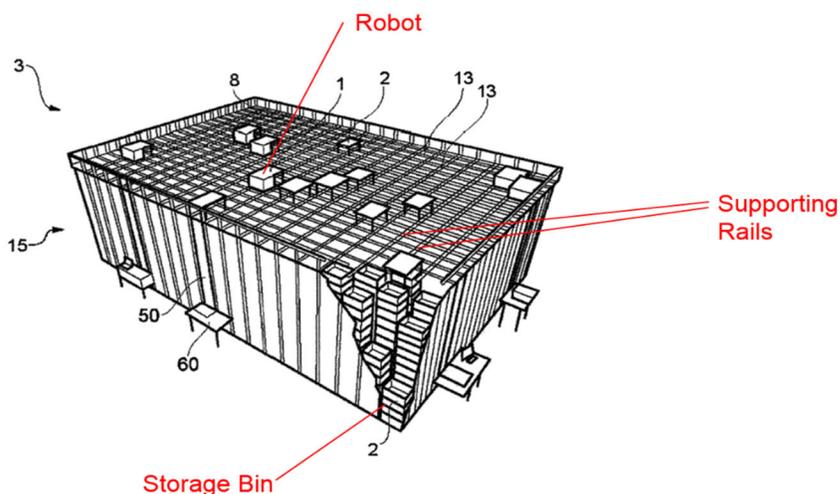


FIG. 1 (PRIOR ART)

The '025 Patent describes, for use in connection with this system, (i) a robot having a “cavity suitable for receiving a storage bin” (*Id.* 1:60-61); (ii) a lifting device “for lifting [a] storage bin into the cavity” (*Id.* 1:62-64); (iii) “driving means” comprising two sets of wheels for travel on the rails in either the x or y direction (*Id.* 2:6-15); and (iv) a “displacement arrangement,” including a motor, for lifting, *e.g.*, the wheels allowing travel in the x-direction up and away from the rails so that the vehicle may travel in the other lateral direction (the y-direction; *id.* 1:64-2:6).

Each of the challenged claims is directed to a particular purported embodiment of the robot, or to its use in a storage grid system. Claim 1 is directed to an embodiment in which the displacement motor is located above the cavity. Claim 18 is directed to a prior art storage system that uses the robot of claim 1. Claim 19 is directed to a system with “double track” rails in which each rail is made up of two tracks to allow properly sized robots to pass one another in both directions. Finally, claim 20 is directed to a robot whose cross-sectional area (as seen from above) is the same as that occupied by a single grid space.

The claimed embodiments are neither new nor inventive. The '178 Patent (EX1003) anticipates or renders obvious every challenged claim. It discloses a robot intended for use in the same type of storage system, with the

same cavity, storage bin lifting device, driving means, and displacement arrangement with a motor located above the cavity. It also discloses double track rails and a robot that occupies a single grid space. Likewise, WO/901 (EX1010), in combination with WO/789 (EX1011), discloses each of these features except the location of the displacement motor—a location rendered obvious by the limited number of choices available.

Other prior art also disclosed the embodiments recited in claims 19 and 20 which are limited to an effective filing date one year later than claims 1 and 18. GB/313 (EX1004), publicly available before that date, discloses the same features as the '178 Patent, including double track rails and a single space robot. GB/104 was published on May 13, 2015, and thus is also prior art to claims 19-20 of the '025 Patent. GB/104 includes higher resolution images of the double track system disclosed in the '178 Patent; taken together with the disclosure of the other claimed elements in the '178 Patent it renders claim 19 obvious.

In sum, the prior art anticipates or renders obvious all of the challenged claims. Accordingly, the Board should institute trial and issue a final written decision cancelling Claims 1 and 18-20 as unpatentable.

X. TECHNICAL BACKGROUND

A. The Storage Grid and Robot Disclosed in the '025 Patent.

The technology of the '025 Patent relates to remotely operated robot vehicles, or robots, used in material handling systems. Specifically, the patent relates to robots for accessing storage bins within a three-dimensional storage system grid used, for example, to store items in bins stacked in a warehouse. (PD ¶51.) The robots may, for example, be directed to collect a specific bin from a particular stack in response to a customer order, and deliver the bin to an assembly area. (PD ¶51; *see also* EX1001, 1:35-40.)

The storage structure disclosed as prior art in the '025 Patent comprises a set of perpendicular rails that define a grid of stacked-bin storage columns. The rails provide a driving track for the robots. (PD ¶52; *see also* EX1001, 1:18-24.) The '025 Patent discloses, as an “advantageous embodiment” (claimed in claim 19), that “the plurality of crossing supporting rails are . . . double track rails comprising a first and second X-rail in the first direction (X) and a third and fourth Y-rail in the second direction (Y).” (EX1001, 4:22-25.) The specification explains these “double track rails” allow two robots in adjoining grid spaces to pass one another over adjoining grid spaces.” (*Id.* 1:47-49.)

The body of the robot claimed in the '025 Patent is described in the specification as having a generally rectangular shape with a centrally arranged cavity within the body. (PD ¶53; EX1001, 6:23-25.) Figures 2 and 3 illustrate the robot's shape and the location of the cavity:

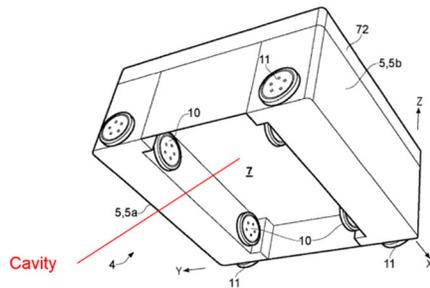


FIG. 2

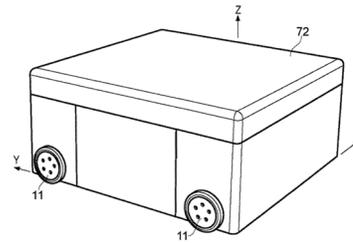


FIG. 3

(PD ¶53.)

In one embodiment the robot may have “a cross sectional area covering a single cell in the storage system.” (*Id.* 9:22-23.)

In order to lift a storage bin from a stack into the cavity, the robots have a “lifting device” (EX1001, 1:62-64) that includes a motor and belts to raise and lower a gripping device into contact with a storage bin. (PD ¶54; EX1001, 9:46-50; and Figure 11(a).)

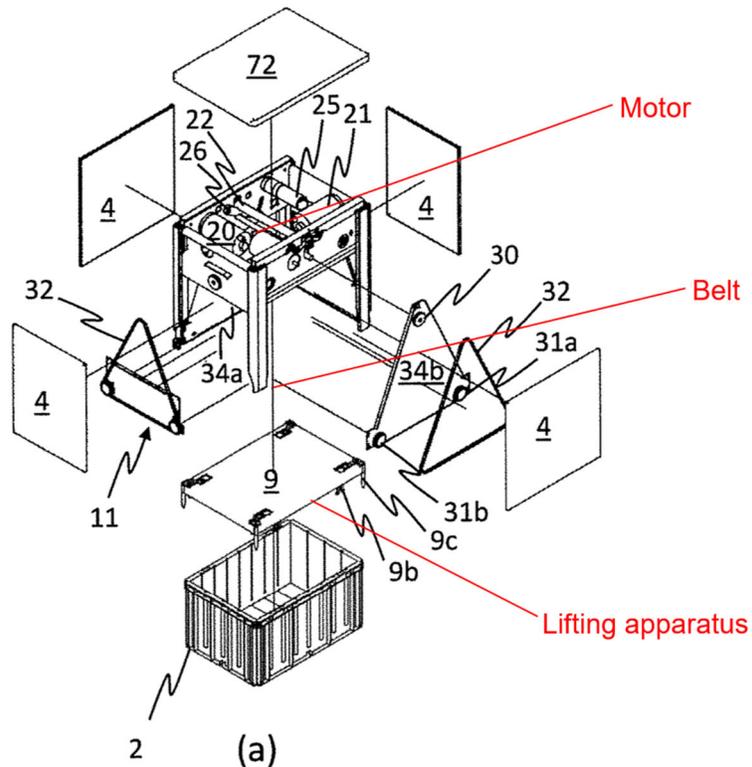


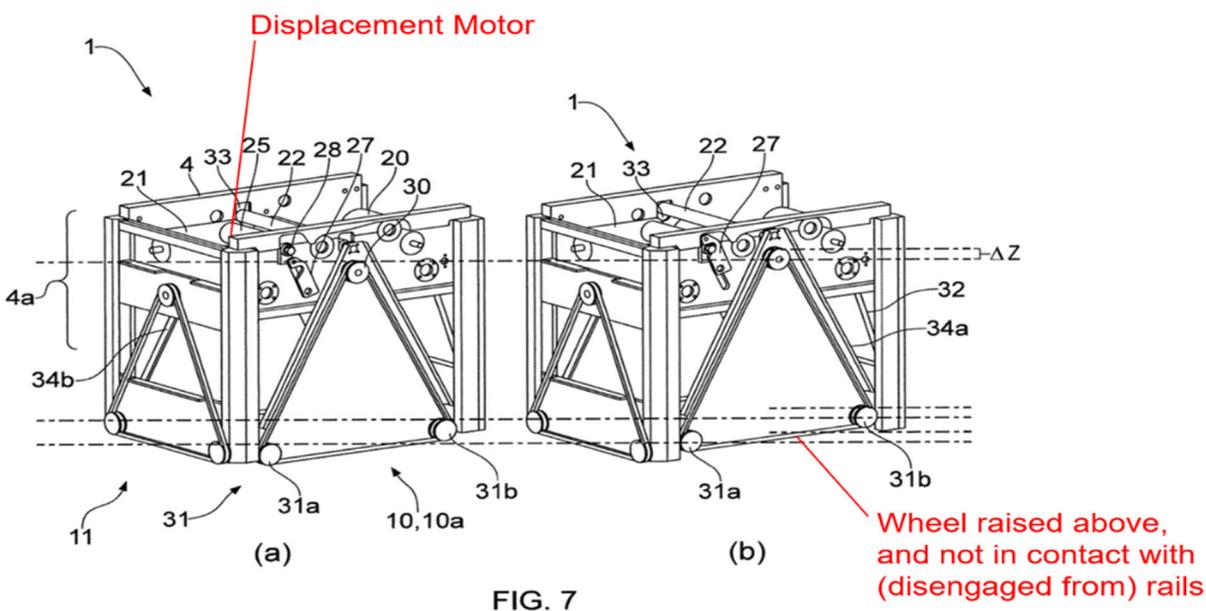
FIG. 11

(PD ¶54.)

As was disclosed in the prior art (*see* EX1001, 1:20-25, 31-34), the robot in the '025 Patent travels along the rails, over the top of the storage grid.

(PD ¶55.) The robot has a “driving means” comprised of sets of wheels arranged perpendicularly (*i.e.*, one set has four wheels for travel in the x-direction and a second set has four wheels for travel in the y-direction). (PD ¶¶55-56; EX1001, 6:61-67.) The robot also includes a “displacement arrangement” to allow it to

change from moving in the x- direction to the y- direction and vice versa). (PD ¶57.) This includes a “displacement motor” that “is configured to . . . provide the power . . . to displace” either set of wheels “between a displaced state where the relevant [wheel set] is displaced away from the [rails], and a non-displaced state where the relevant [wheel set] is in contact with the [rails].” (EX1001, 1:65-2:6, 6:21-29.) In other words, the displacement motor purportedly moves at least one of the sets of wheels up or down, in or out of contact with the rails. (PD ¶57.)



(PD ¶57.)

As depicted in Figure 7, the displacement arrangement has a displacement bar **22** or shaft connected to the wheel sets on each side, a displacement motor **25**, and a lever arm **23** that abuts the shaft. (PD ¶58; EX1001, 7:13-38.) The motor, located above the cavity, powers the lever arm with a

rotational force that is transferred to the shaft (and connected wheel sets) so as to raise a set of wheels from the rails. (PD ¶58; EX1001, 7:34-65.)

None of these features are novel and all are disclosed in the prior art.

B. Level of Ordinary Skill in the Art

As Dr. Pfeifer explains, “a person of ordinary skill in the art (“POSITA”) at the time of the invention of the ’025 Patent would have had 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 systems.” (PD ¶64.)

C. Claim Construction

The challenged claims should be afforded a meaning “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.” 37 C.F.R. § 42.100(b). Petitioner is unaware of any prior claim construction concerning the ’025 Patent.

Claim 1 includes the term “driving means.” While a term including the word “means” is normally presumed to invoke construction under 35 U.S.C. § 112(f), here claim 1 recites sufficient structure to overcome the presumption. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (use of the

word “means . . . does not automatically make that element a ‘means-plus-function’ element under 35 U.S.C. § 112 because “[t]he essential inquiry is . . . whether the words of the claim are understood by [a POSITA] to have a sufficiently definite meaning as the name for structure.”). Claim 1 recites extensive structure, stating that the driving means “comprises . . . a first set of vehicle wheels connected to the vehicle body . . . , and a second set of vehicle wheels connected to the vehicle body . . . , the second set being perpendicular to the first.” (EX1001, claim 1; PD ¶66.)

Even if it were construed under 35 U.S.C. § 112(f), the function of the driving means should be construed to be a “means for driving” (based on the claim language), and the structure of the driving means should be construed to mean “a first set of vehicle wheels connected to the vehicle body and a second set of vehicle wheels connected to the vehicle body, the second set being perpendicular to the first,” as set out in the ’025 Patent in claim 1 and 6:60-67. (*See* EX1008; PD ¶67.)

XI. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. Grounds 1(a) and 1(b): The ’178 Patent Anticipates or Renders Obvious Claims 1 and 18-20 of the ’025 Patent.

To anticipate a patent claim, a prior art reference must disclose each element of the claim, explicitly or inherently, and enable one of ordinary skill in the art to practice the invention without undue experimentation. *See generally*

Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc., 246 F.3d 1368 (Fed. Cir. 2001). Claims are invalid as obvious where “the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” 35 U.S.C. § 103.³ Here, as shown below, the ’178 Patent expressly discloses or renders obvious each of the limitations of claims 1, 18, 19 and 20 of the ’025 Patent.

1. Claim 1:

a. Claim Limitation 1 (Preamble)

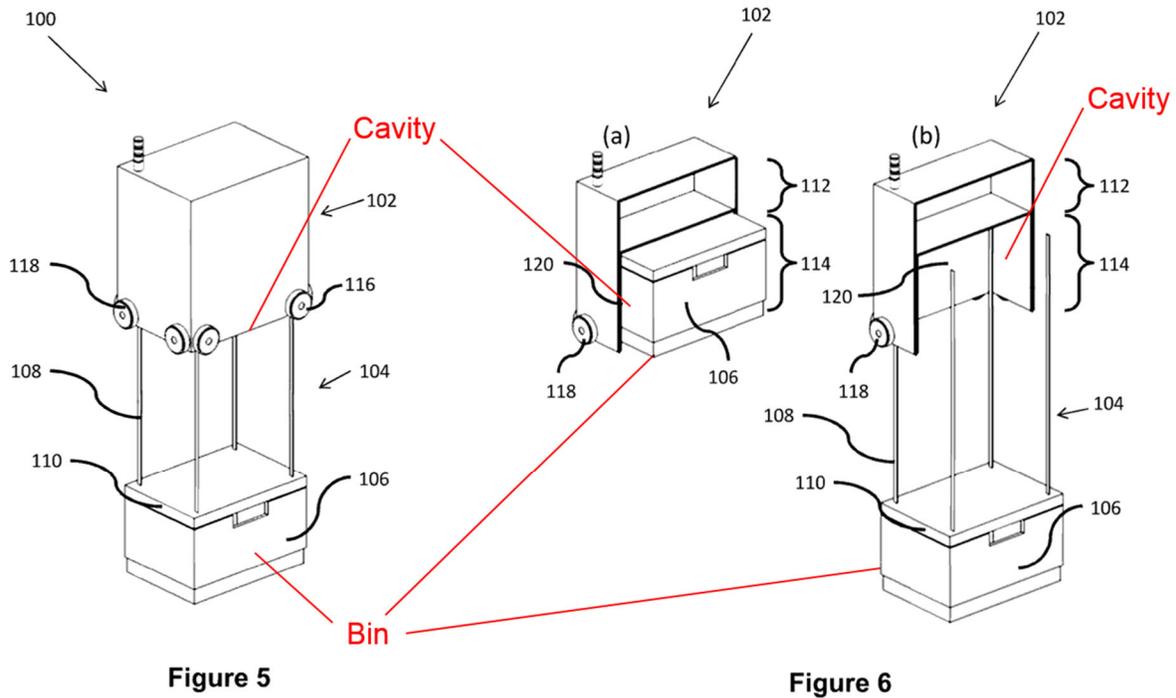
The ’178 Patent discloses “[a] remotely operated vehicle assembly for picking up storage bins from an underlying storage system” as recited in the preamble of claim 1. (PD ¶¶71-75.) The term “remotely operated vehicle assembly,” as used in the preamble of claim 1, is used interchangeably with the term “robot” to refer to the same device in the ’025 Patent. (*See, e.g.*, EX1001, 11:12 (device identified as “1” in Fig. 4 is a “remotely operated vehicle assembly/robot”).)

³ Petitioner is not aware of any secondary considerations of non-obviousness that relate to claims 1, 18, 19 or 20 of the ’025 Patent.

The '178 Patent discloses robots, specifically, “robotic devices for handling storage containers or bins in a store comprising a grid of stacked units.” (PD ¶¶73-75; EX1003, 1:8-10; 7:1-2 (load handler “is preferably” a “robot vehicle”).) These robots “are arranged above the stacks of containers and are capable of lifting”—picking up—“a container from a stack.” (EX1003, 5:1-4; PD ¶72.) Moreover, the robots disclosed in the '178 Patent are “under the control of a central computer” and include “controllers and communications devices” that allow them to be remotely operated. (EX1003, 4:28-29; 9:30-31.)

b. Claim Limitation 1(a)

The robot disclosed in the '178 Patent includes “a vehicle body displaying a cavity for receiving a storage bin within the storage system,” as set out in claim limitation 1(a). (PD ¶76.) The '178 Patent discloses that the robot “includes a container-receiving space,” which constitutes the cavity, into which a container/or bin “can be lifted.” (PD ¶76; EX1003, 5:22-24; 9:16-20 (robot includes a “cavity or recess [], known as a container receiving recess” which is “sized to accommodate the bin”).) Figure 5 of the '178 Patent shows a robot with bin **106** being lifted into the cavity, while Figure 6 shows a “cut-away” of Figure 5, “to show the inside of the device,” including the cavity **114** (and a bin being received into the cavity). (PD ¶76; EX1003, 8:30-34.)



(PD ¶76.)

c. Claim Limitation 1(b)

The vehicle disclosed in the '178 Patent includes a “vehicle lifting device connected to the vehicle body for lifting the storage bin into the cavity,” as set out in claim limitation 1(b) of the '025 Patent. (PD ¶¶78-79.) The '178 Patent states that the robot includes “a lifting device arranged to lift a single container from a stack into the container receiving space” (EX1003, 7:19-21), including a winch motor “housed in,” and thus connected to, the “upper” part of the robot’s body. (PD ¶78; EX1003, 6:47-51; *see also id.* 6:13-15 (motors for lifting containers into cavity are “housed in the vehicle module”).) The vehicle lifting

device is shown in Figure 5 (above; PD ¶78), which depicts the winch and a “grabber plate **110** . . . configured to grip the top of the container 106 to lift it from a stack of containers.” (EX1003, 8:64-9:4.)

d. Claim Limitation 1(c)

Claim limitation 1(c) requires

driving means comprising: a first set of vehicle wheels connected to the vehicle body allowing movement of the vehicle along a first direction within the storage system during use, and [also comprising] a second set of vehicle wheels connected to the vehicle body allowing movement of the vehicle along a second direction . . . , the second direction being perpendicular to the first direction

This “driving means” limitation should be construed to mean that the robot includes two sets of wheels, arranged perpendicularly, that allow the robot to move laterally in X- and Y- directions. (PD ¶¶66-67, 81-82; EX1001, 11:27 & 11:30; *see also supra* at pp. 16-17.) This is shown in Figure 2 of the ’025 Patent:

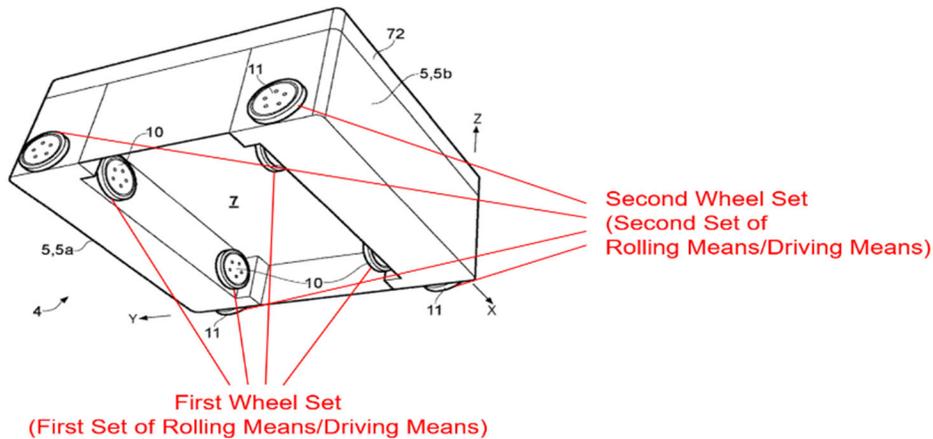


FIG. 2

(PD ¶81.)

The same use of two perpendicular sets of wheels to allow the robot to travel in both the x and y directions, is disclosed in the '178 Patent. (PD ¶83.) The robot includes “[t]wo sets of wheels . . . with one set being arranged to engage with a first set of rails to guide movement of the load handling device in a first direction,” while another set is “arranged to engage with a second set of rails to guide movement . . . in a second direction.” (PD ¶83; EX1003, 5:54-59.) The two sets of rails are perpendicular. (PD ¶83; EX1001, 11:37-40.) The '178 Patent also discloses that Figures 5 and 6 show that “the lower part 114” of the robot “is fitted with two sets of wheels **116, 118.**” (EX1003, 9:7-8.) Each set is arranged to “enable movement of the vehicle 102 in X- and Y-directions respectively along the rails.” (*Id.* 9:9-11.)

Each wheel in the set is connected to an arm **180**, and the arm for each wheel is connected to a “common linkage” **184**. (PD ¶88; EX1003, 10:21-25.)

“The upper end of the common linkage **184** is connected to a lever arm **186** that is moved by a motor **188**.” (EX1003, 10:25-27.) As the ’178 Patent explains:

By operating the motor **188** to [rotate the lever arm and] draw the common linkage **184** upwards, the first set of wheels **116** can be raised so that the second set of wheels **118** alone is engaged with the rails, allowing movement of the vehicle **102** in the Y-direction. By operating the motor **188** to push the common linkage **184** downwards, the first set of wheels **116** move downwards to engage with the rails and to lift the vehicle so that the second set of wheels **118** is lifted clear of the rails, as shown in FIGS. 9, 11 and 12. The vehicle **102** can then move in the X-direction.

(*Id.* 10:27-37.) Thus, the ’178 patent discloses a motor that creates a force to pull or push a linkage that moves the wheels upward or downward, and thus in or out of contact with the rails. (PD ¶89.)

f. Claim Limitation 1(e)

Claim limitation 1(e) requires that “the displacement motor is situated in a lateral plane above the cavity.”

The '178 Patent discloses that the motor that operates the wheel positioning arrangement, corresponding to the displacement motor recited in limitation 1(e), is located in a plane above the cavity. (PD ¶91.) The '178 Patent states that the “container-receiving space into which a container can be lifted”—the cavity—is “arranged *beneath a vehicle module*” in which, among others, “drive components and lifting components are housed.” (EX1003, 5:23-27 (emphasis added).) The patent also states that “[o]ne or more *wheel lift motors* . . . may be housed in this vehicle module.” (*Id.* 6:8-10 (emphasis added).) Thus, the '178 Patent expressly discloses that the motor is housed in a “vehicle module” located above the cavity. (PD ¶92.)

Figures 8, 9 and 12 of the '178 Patent also disclose that the motor is located above the cavity. (PD ¶93.) The robot “comprises an upper part **112** and a lower part **114**.” (EX1003, 9:5-6; *see also* Fig. 8 (below), Fig. 9 (above).) The “container-receiving recess **120**,” or “cavity,” is located “in the lower part 114” of the robot. (PD ¶93; EX1003, 9:16-18; *see also* Fig. 8.)

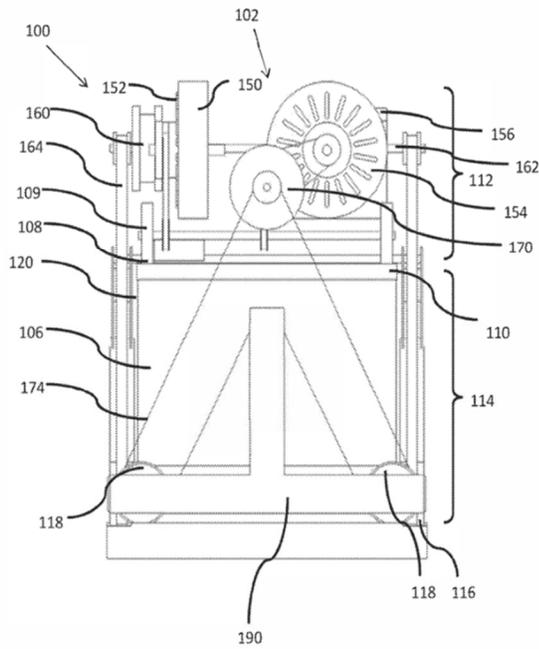


FIG. 8

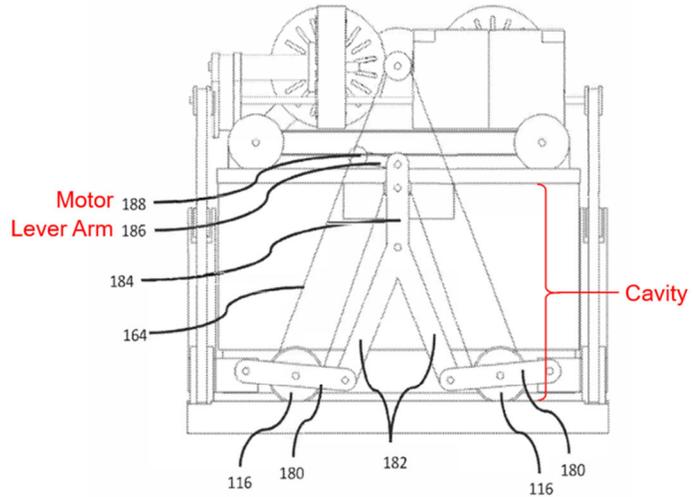


FIG. 12

(PD ¶93.)

The '178 Patent discloses that “[b]y arranging the bulky components of the load handling device,” such as motors, ”above the container-receiving space, the footprint of the load handling device is reduced” as compared to prior art robots.

(EX1003, 5:32-35.) As shown in Figures 9 (*see supra* at p. 23) and 12, among the components placed *above* the cavity is the motor **188** used to displace the wheel sets. (PD ¶94.)

g. Claim Limitation 1(f)

Claim limitation 1(f) requires that the displacement motor is “further configured to generate a power that is converted to a vertically directed pressure

force acting on the first or second set of vehicle wheels.” (PD ¶96.) The only mention of “pressure force” in the ’025 Patent is its statement that the displacement motor, “by means of the rotating lever arm,” exerts “a pressure force” on the wheels “in the vertical direction, away from the underlying storage system.” (EX1001, 4:52-59.) A POSITA would understand that the “pressure force” is thus an upward force that pulls the wheels away from the rails and that the limitation requires use of the rotating motor to create a force to pull the wheels up. (PD ¶97.)

The same use of a motor to pull the wheels upward away from the rails is disclosed in the ’178 Patent. (PD ¶98-99.) It explains that by operating the motor **188**, a connected lever arm “draw[s] the common linkage **184** upward” and that this upward force “raise[s]” a set of wheels. (EX1003, 10:27-29.) Similarly, using the motor to rotate the lever arm in the opposite direction “push[es] the common linkage **184** downwards” causing the set of wheels to move downwards to engage with the rails. (*Id.* 10:31-37; and Fig. 9 (above).) A POSITA would understand that the ’178 Patent thus discloses the use of a motor’s rotational power, translated to a vertical “pressure force” through the use of a lever and linkage, to draw the wheels of a robot up and away from the storage grid. (PD ¶99.)

* * *

For the reasons discussed above, the '178 Patent discloses to a POSITA all of the elements of claim 1 of the '025 Patent and thus anticipates or renders obvious that claim. (PD ¶¶71-100.)

2. Claim 18:

a. Claim 18 (Preamble)

The preamble of claim 18 describes the invention as “[a] storage system for storage of bins.” This is disclosed in the '178 Patent. (PD ¶101; *see supra* at Section XI.A.1.a.)

b. Claim Limitation 18(a)

Claim limitation 18(a) recites “the remotely operated vehicle assembly of claim 1.” As shown in Section XI.A.1., *supra*, the '178 Patent discloses each of the elements recited in claim 1.

c. Claim Limitation 18(b)

Claim limitation 18(b) recites:

a vehicle support comprising a plurality of crossing supporting rails directed perpendicular to each other, a bin storing structure supporting the vehicle support, the structure comprising a plurality of storage columns, wherein each of the plurality of storage columns is arranged to accommodate a vertical stack of storage bins.

The vehicle support and bin storing structure set out in limitation 18(b) were well known in the prior art (*see* EX1001, 1:18-30), and are fully disclosed in the '178 Patent. (PD ¶103-04; *see supra* at Sections IX, XI.A.1.a.) The '178 Patent states that “the invention relates to robotic devices for handling storage containers or bins in a store comprising a grid of stacked units.” (EX1003, 1:8-10.) Each stack [of bins is] located within a footprint of substantially only a single grid space.” (*Id.* 5:11-13.) It describes a storage system comprising rails or tracks “arranged in a grid pattern” above the columns of vertically “stacked” containers or bins, such that the robots “move laterally on the rails . . . above the stacks.” (*Id.* 5:7-14.) It discloses that the rails are “arranged perpendicular” to one another. (*Id.* 2:62-3:3; *see also id.* 11:36-40, 2:49-58.)

* * *

For the reasons discussed above, the '178 Patent discloses obvious all of the elements of claim 18 of the '025 Patent and thus anticipates or renders obvious that claim. (PD ¶106.)

3. Claim 19

Claim 19 recites:

The storage system in accordance with claim 18, wherein the plurality of crossing supporting rails are paired to

comprise: a first and second rail in the first direction and a third and fourth rail in the second direction.

Claim 19 is directed to paired or “double track” rails. (PD ¶107; EX1001, 9:9-11.) A “double track” rail comprises “a first and second x-rail” on a single rail member in the x-direction, and “a first and second y-rail” on a member in the y-direction. (PD ¶107; EX1001, 10:35-39.) Each of the members includes a centerline that divides the two x-rails or the two y-rails, and confines the wheels to a single one of the two tracks, allowing another robot to pass on the other track. (PD ¶107.) According to the '025 Patent, the use of double track rails has the advantage of allowing vehicles sized to occupy a single grid space “to pass/cross at all four lateral sides.” (EX1001, 10:31-32.)

The double track rail system is disclosed in the '178 Patent, as the Examiner of the patent expressly found. (PD ¶108; *see infra* at p. 31.) Drawings and pictures may anticipate claims where, as here, they clearly show the claimed structural features. *In re Mraz*, 455 F.2d 1069, 1072 (C.C.P.A. 1972); A drawing must be evaluated for what it reasonably discloses and suggests to one of ordinary skill in the art, regardless of whether the feature shown is not explained in the specification. *In re Aslanian*, 590 F.2d 911, 914 (C.C.P.A. 1979). A “reference can anticipate a claim even if it ‘does not expressly spell out’ all the limitations

arranged or combined as in the claim.” *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015) (citation omitted).

The Examiner of Application 15/905,294, the application that led to the '178 Patent, has already determined that the figures in the '178 Patent disclose double track rails. (See PD ¶114.) The Examiner is “assumed to have some expertise in interpreting the references and to be familiar from [his] work with the level of skill in the art,” *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1304 (Fed. Cir. 2008) (citation omitted). In his Notice of Allowance, the Examiner stated that “[u]pon a closer review of the drawings as filed *it is clear that there are dual rails surrounding each grid space* such that two load handling devices (*i.e.*, **100**) can indeed occupy and service and adjacent grid spaces at the same time, overcoming the various 112 rejections presented previously.” (EX1016 (U.S. Patent App. No. 15/905,294 File History – Notice of Allowance (Oct. 22, 2019), pp. 2-3).)

As the Examiner found, the disclosure of double track rails is evident in several of the figures of the '178 Patent.

First, Figure 7 of the '178 Patent shows a grid system that allows properly sized robots to pass one another over adjacent grid spaces. (PD ¶109.) For reference, Dr. Pfeifer prepared an annotated version of Figure 7 in which the

two tracks, divided by a centerline in the figure, have been colored blue and yellow. Figure 7 clearly discloses that each grid space is framed by dual tracks on a single rail member, and shows this allows robots can be positioned over adjacent grid spaces to pass one another on the the dual track rail. (PD ¶¶110-11.)

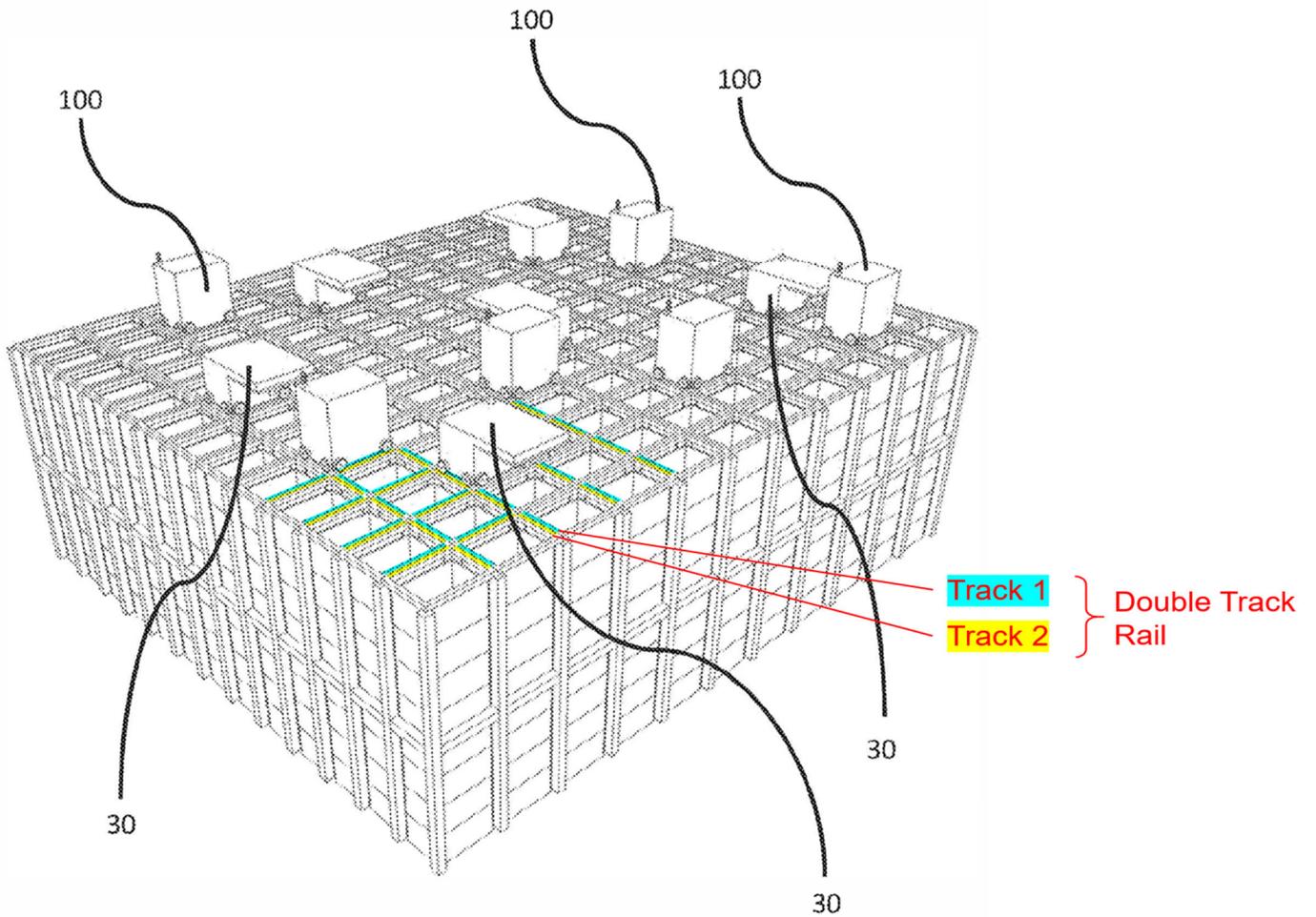
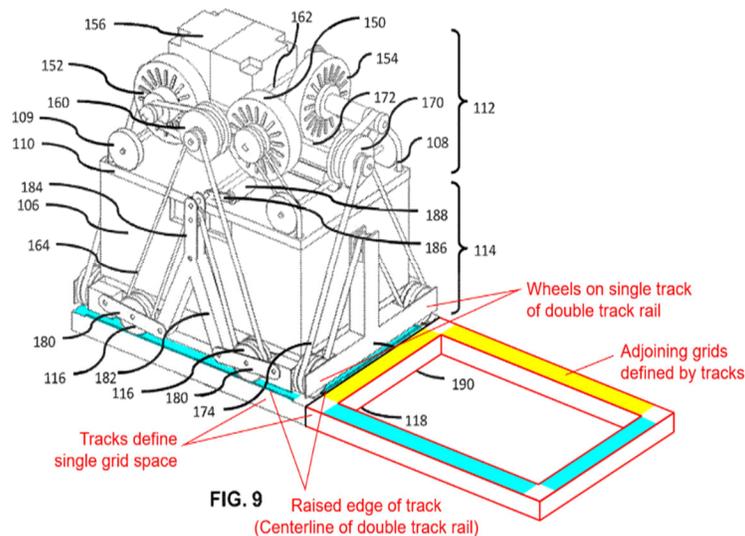


FIG. 7

(PD ¶109.)

Second, Figures 9 and 10 show how the wheels of the robot interact with the single track surrounding a single grid space. These figures show the robot wheels **116**, **118** on the single track of a dual track system. (PD ¶112.) A POSITA would understand that the raised edge of the single track shown in these figures defining the perimeter of a single grid space constitutes the centerline of a dual track system, and that the second track of the double track rail would come from the perimeter of an adjacent grid space. (PD ¶113.) In other words, a POSITA would understand that each grid space is defined by the tracks that surround it, and that to create the grid structure of the storage system from the single grid space shown in Figures 9 and 11, each rail necessarily would comprise two tracks divided by a centerline. (*Id.*) This is shown as rails composed of the combination of a yellow track and a blue track in the figures from the '178 Patent below.



(PD ¶113.)

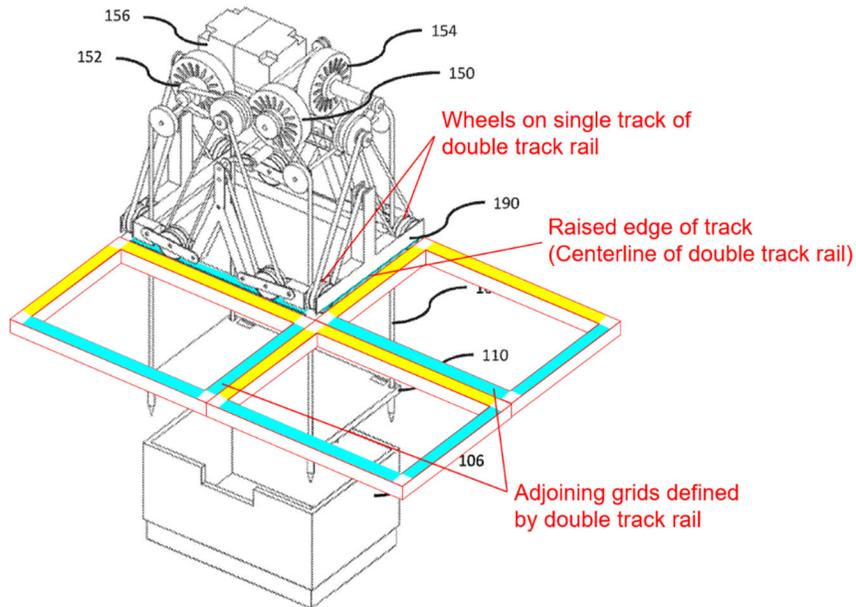


FIG. 11

(PD ¶113.)

4. Claim 20

Claim 20 recites “[t]he storage system in accordance with claim 18” where “the lateral cross sectional area of” the robot “occupies at most the lateral cross sectional area of one of the plurality of storage columns” with “the distance being measured from the center line of each rail.” (PD ¶115.) The ’025 Patent states that robot vehicles with a cross-sectional area covering “two storage columns” were known in the prior art, but their use “limit[ed] the maximum number of simultaneously operating vehicles.” (EX1001, 1:41-44.) Claim 20 recites a robot whose cross-sectional area covers “at most the lateral cross sectional

area of one” of the stacked bin columns in the storage grid. (PD ¶116.) The claim is thus directed to a “single space robot” occupying a single grid space. (*Id.*)

The ’178 Patent also discloses a robotic vehicle that occupies only a single grid space (PD ¶117): “Advantageously, the load handling device of the invention occupies the space above only one stack of containers.” (EX1003, 5:38-40; *see also id.* 7:22-24 (“the load handling device has a footprint that occupies substantially only a single grid space in the storage systems”).)⁴ This is accomplished by placing the “bulky components” of the robot, including motors, above the cavity. (PD ¶118; EX1003, 5:32-35.) Like the ’025 Patent, the ’178 Patent discloses that use of single space robots improves efficiency, and permits the system to “accommodate more load handling devices in a given system.” (EX1003, 7:61-65.)

Several of the figures of the ’178 Patent also disclose a single space robot. Figure 5 depicts a robot with a cross-sectional area limited to that of a single storage bin. (PD ¶119.)

⁴ The ’178 Patent points out that this is in contrast to the prior art cantilever design which (as the ’025 Patent also acknowledged) occupies the space above two stacks.

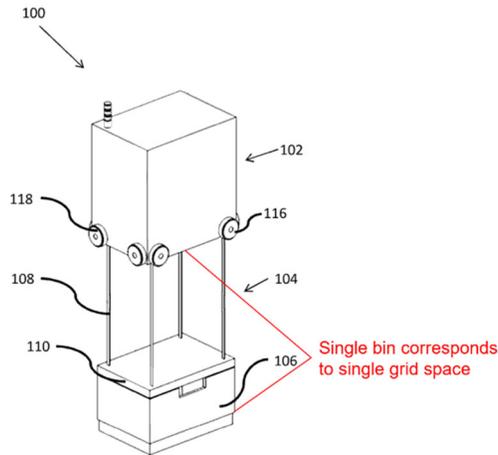


Figure 5

(PD ¶119.)

Likewise, as Dr. Pfeifer explains, a POSITA would understand from Figure 7 that, in this embodiment, the circled robots occupy a single grid space defined by the distance from the centerline of one rail to the centerline of the other rail that defines the grid space. (PD ¶120.)

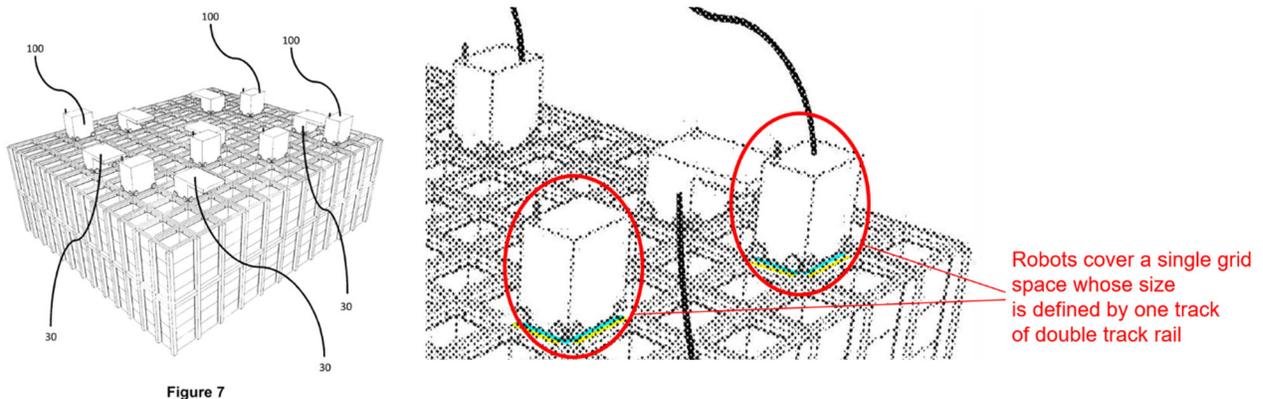
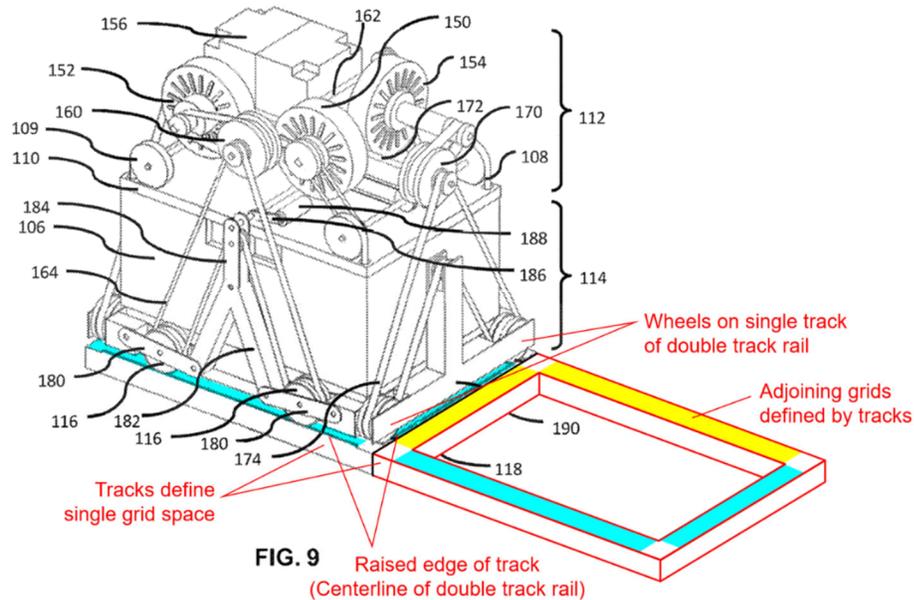


Figure 7

(PD ¶120.)

Figure 9 (shown *supra* at p. 23) also discloses a single space robot, as measured “from the center line of each rail” as recited in claim 20. (PD ¶121.) In

Figure 9, the centerline of the rail necessarily corresponds to the raised divider that defines one track of the double track rail necessarily created when the single grid space shown is combined with others to form the storage grid. (*Id.*)



(PD ¶113.)

For all these reasons, the '178 Patent thus discloses and renders obvious to a POSITA a single space robot, as measured from the centerlines of the rails, as recited in claim 20.

B. Grounds 2(a) and 2(b): GB/313 Anticipates or Renders Obvious Claims 19-20 of the '025 Patent.

1. Claims 19 and 20 of the '025 Patent Are Not Entitled to Priority to June 19, 2014.

To be entitled to the benefit of the filing date of an earlier-filed application, the claimed invention must be disclosed in the prior application.

See Transco Prods., Inc. v. Performance Contracting, Inc., 38 F.3d 551 (Fed. Cir. 1994). The priority document to the '025 Patent, NO/773 (EX1009), does not disclose the inventions of claims 19-20, and thus these claims are not entitled to the NO/773 priority date of June 19, 2014. Specifically, there is no support in NO/773 for the double track rails or a single space robot. (PD ¶¶45 and 124-27.)

For example, there is no discussion or mention of a robot that “occupies at most the lateral cross sectional area of one of the plurality of storage columns within the bin storing structure” as required by claim 20. (PD ¶¶125.) As Dr. Pfeifer explains, Figures 2, 3 and 4 are the only robots depicted in NO/773, and each shows a robot that is substantially larger than a bin or single grid space. (PD ¶¶126.) Nor does NO/773 disclose the double track rail system claimed in claim 19 of the '025 Patent. There is no mention of double track rails in NO/773, and the only depiction of the storage grid is in Figure 4, which does not show the rails. (See PD ¶¶127.)

Because the claimed inventions of claims 19 and 20 are not disclosed in the NO/773 priority application, the effective filing date with respect to these claims is June 16, 2015, the filing date of the PCT application that led to the '025 Patent and the first application in which support for claims 19 and 20 appears. GB/313 was publicly available as early as February 12, 2015 and no later than May

13, 2015, *see supra* at Section VIII.A.2.-3., before the effective filing date of claims 19 and 20 of the '025 Patent.

2. Claims 19 and 20 Are Anticipated or Rendered Obvious by GB/313.

GB/313 discloses to a POSITA all of the elements of claims 19 and 20, including the elements of claims 1 and 18 from which claims 19 and 20 depend. (PD ¶128.)

a. Claim 1

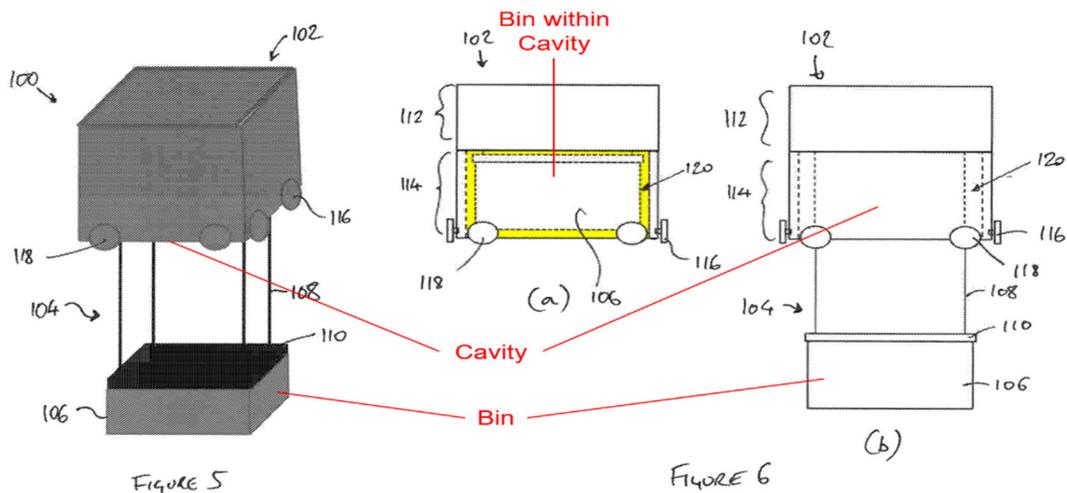
i. Claim 1 (Preamble)

GB/313 discloses “[a] remotely operated vehicle assembly for picking up storage bins from an underlying storage system,” as recited in claim 1. (PD ¶¶129-30.) GB/313 explains that “the invention” relates to “robotic devices for handling storage containers or bins in a store comprising a grid of stacked units” that “are capable of lifting a container from a stack.” (EX1004, 1:6-7, 5:36-37.) Each of the robots is “under the control of a central computer” (*Id.* 5:5) and includes “controllers and communications devices” that allow it to be remotely operated from the central computer. (*Id.* 10:34-37.)

ii. Claim Limitation 1(a)

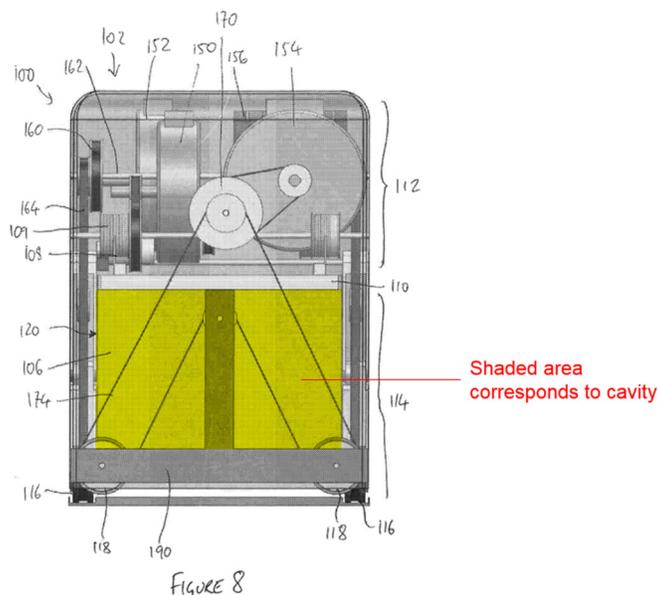
The robot disclosed in GB/313 includes a cavity for receiving a storage bin from the storage system, as recited in limitation 1(a) of claim 1. (PD

¶131.) GB/313 discloses that the load handling device “includes a container-receiving space,” or “cavity,” into which a storage bin can be “lifted” (EX1004, 10:26-29), and that the cavity is “sized to accommodate the bin” when it is lifted from a stack by the robot. (*Id.* 10:27-28). Figure 5 of GB/313 shows a robot with bin **106** being lifted into the cavity, while Figures 6a and 6b, respectively, show a robot with the bin received into and lowered from the cavity **120**. (PD ¶133.)



(PD ¶133.)

A robot displaying the cavity (highlighted in yellow) **120** is also depicted in Figure 8 of GB/313, where the top of the cavity is designated as the upper end of **114**:



(PD ¶ 134.)

iii. Claim Limitation 1(b)

GB/313 discloses a lifting device for lifting a storage bin from a storage system into the cavity of the vehicle, as recited in claim limitation 1(b).

(PD ¶136; EX1004, 6:36-7:3, 10:10-13.) This includes a winch and motor for lifting the container into the container-receiving space, a gripper device to grip the container from above and lifting cables that may include an anchor mechanism to releasably engage with a container in the storage system. (PD ¶137; EX1004, 6:36-7:24.) Figure 11 shows this system, depicting the robot's gripper plate **110** about to engage bin **106** to lift it into the cavity. (PD ¶136.)

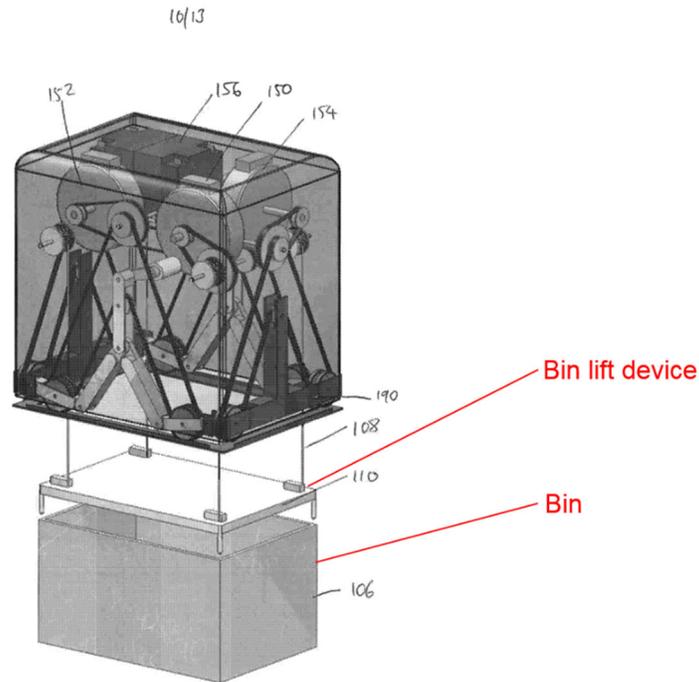


FIGURE 11

(PD ¶136.)

iv. Claim Limitation 1(c)

GB/313 discloses a driving means comprising two sets of wheels arranged perpendicularly to each other on the vehicle for allowing movement of the vehicle in the first and second directions, corresponding to the driving means recited in limitation 1(c). (PD ¶139.) GB/313 discloses that “[t]wo sets of wheels may be provided,” for the robot, “with one set being arranged to engage with a first set of rails to guide movement [] in a first direction, and another set being arranged to engage with a second set of rails to guide movement [] in a second direction.”

(PD ¶140; EX1004, 6:17-24.) The rails are arranged “perpendicular” to one

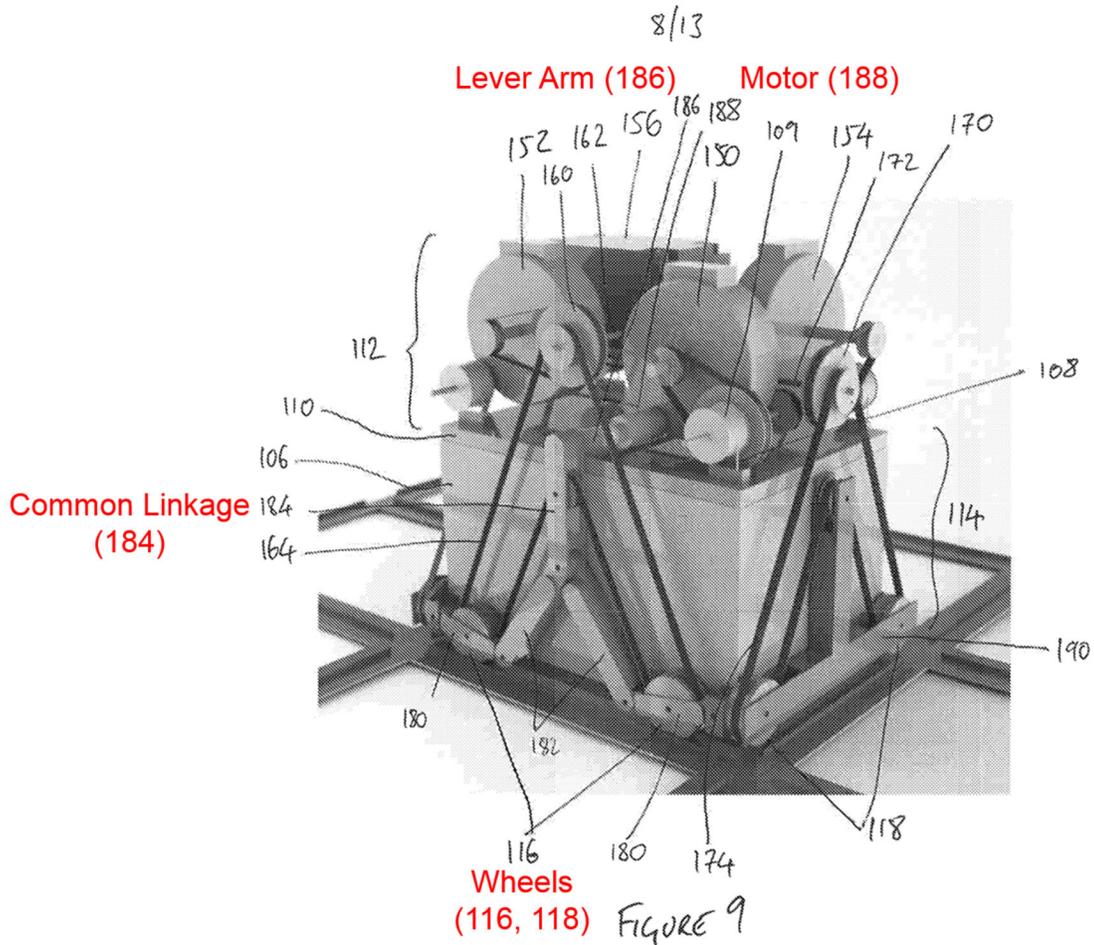
another, allowing movement of the robot “laterally in two dimensions in the horizontal X-Y plane,” so that it can be moved into position above any of the stacks. (PD ¶140; EX1004, 3:14-19.)

v. Claim Limitation 1(d)

Like the '178 Patent, GB/313 also discloses the displacement arrangement recited in limitation 1(d) of claim 1, including a displacement motor used to move the wheels up and down to engage or disengage their contact with the rails. (PD ¶142.) As GB/313 explains:

Each wheel 116 is mounted on an arm 180 that is pivotally mounted at its outer end. An inner end of each arm 180 is connected to the lower end of a respective linkage 182. The upper ends of both linkages 182 are connected to the lower end of a common linkage 184. In turn, the upper end of the common linkage 184 is connected to a lever arm 186 that is moved by a motor 188. By operating the motor 188 to draw the common linkage 184 upwards, the first set of wheels 116 can be raised so that the second set of wheels 118 alone is engaged with the rails, allowing movement of the vehicle 102 in the Y-direction.

(EX1004, 11:35-12:6.) This is shown in Figure 9 of GB/313:



(PD ¶143.)

vi. Claim Limitation 1(e)

Like the '178 Patent, GB/313 discloses that the “wheel lift motor” that operates the “wheel positioning” arrangement, corresponding to the displacement motor claimed in the '025 Patent, is located in a plane above the container-receiving recess, or cavity, as recited in limitation 1(e) of claim 1. (PD ¶145.)

GB/313 states that the “container receiving space into which a container can be

lifted”—the cavity—is “arranged *beneath a vehicle module*” in which, among others, “drive components and lifting components are housed.” (EX1004, 6:1-4 (emphasis added).) The application also states that “[o]ne or more *wheel lift motors . . .* may be housed *in the vehicle module.*” (*Id.* 6:33-34 (emphasis added).) GB/313 thus discloses that the motor that lifts the wheels located in a “vehicle module” that is above the cavity. (PD ¶¶146-47.)

The location of the displacement motor above the cavity is also shown in the figures in GB/313. (PD ¶148.) Figure 9 (*see supra* at p. 44) discloses that the displacement motor **186** is located above the cavity (the upper bound of which is designated as upper end of **114**). (PD ¶148.) The same arrangement is also depicted in Figure 11, which shows that the motor used to lift or displace the wheels (the white cylinder in front of bin lift motor **150**) is located above the bin lifting device **110** that necessarily defines the upper limit of the cavity into which a bin **106** may be lifted. (PD ¶149; EX1004, 11:16.)

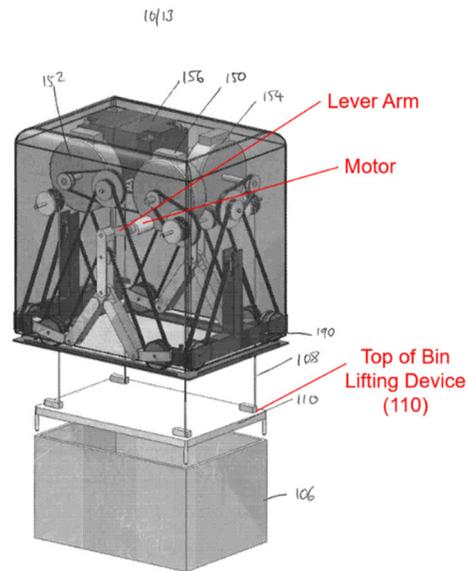


FIGURE 11

(PD ¶149.)

vii. Claim Limitation 1(f)

GB313 also discloses the use of a motor to displace a wheel set by generating a vertically directed pressure force, as recited in limitation 1(f) of claim 1. (PD ¶151.) GB313 explains that by operating the motor **188**, the lever arm “draw[s] the common linkage **184** upwards” and that this upward force “raise[s]” a set of wheels. (EX1004, 11:38-12:3.) Similarly, using the motor to rotate the lever arm in the opposite direction “push[es] the common linkage **184** downwards” causing the set of wheels to move downwards to engage with the rails. (See EX1004, 12:1-6; and Fig 9.)

* * *

For the reasons discussed above, GB/313 discloses all of the elements of claim 1 of the '025 Patent.

b. Claim 18

i. Claim 18 (Preamble)

As shown *supra* at Section XI.B.2.a.i., GB/313 discloses the stacked bin grid storage system recited in the preamble of claim 18.

ii. Claim 18(a)

As shown *supra* at Section XI.B.2.a., GB/313 discloses all of the elements of claim 1 of the '025 Patent.

iii. Claim 18(b)

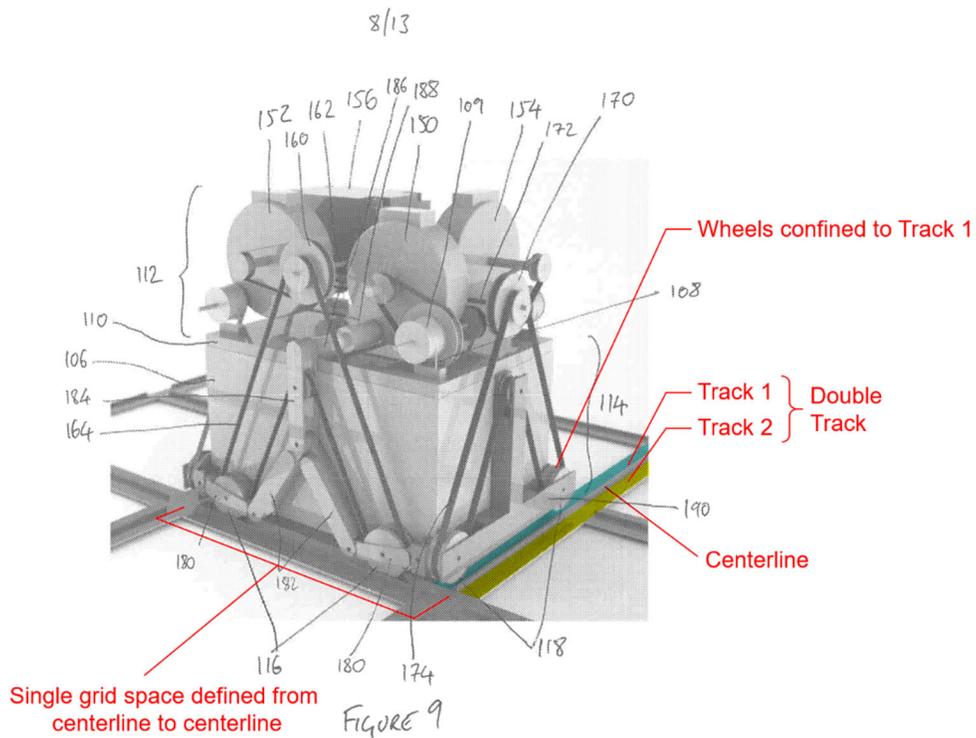
The storage columns and other structures recited in claim 18 are also fully disclosed in GB/313. (PD ¶158.) GB/313 states that “the invention relates to robotic devices for handling storage containers or bins in a store comprising a grid of stacked units.” (EX1004, 1:6-7.) The storage system disclosed in GB/313 (like that disclosed in the '178 Patent) comprises “a grid frame containing a plurality of stacks of containers.” (*Id.* 5:35-36.) “Lateral movement of the load handling device” is “guided by rails disposed above the frame.” (*Id.* 6:18-19.) The application also discloses that crossing of the rails in the grid is such that the rails are “arranged perpendicularly” to one another. (*Id.* 3:5-6; *see also id.* 3:15-16.)

* * *

For the reasons discussed above, GB/313 discloses or renders obvious all of the elements of claim 18 of the '025 Patent.

c. Claim 19

GB/313 discloses the double track rails recited in Claim 19 of the '025 Patent. (PD ¶¶161-64.) As discussed *supra* at p. 30, a claim may be anticipated by a disclosure in a prior art figure. Here, double track rails are clearly shown, *inter alia*, in the rails depicted in Figure 9, to which shading has been added to identify the tracks. (PD ¶162.)



(PD ¶163.)

Figure 9 shows both wheel sets **116, 118** confined to travel on a single portion, limited by the centerline, of the double track rails. (PD ¶162.) A POSITA would see that the rails disclosed in Figure 9 are identical to those depicted in Figure 12(b) (and claimed in claim 19) of the '025 Patent, which allow one vehicle to pass alongside another in adjacent grid spaces without either vehicle impeding the other's movement. (PD ¶163.)

d. Claim 20

As discussed *supra* at Section XI.A.4., claim 20 of the '025 Patent is directed to a single space robot whose cross sectional area is limited to that corresponding to a single grid space. A single space robot is disclosed in GB/313, most clearly in Figure 9 (above), in which the robot's lateral dimensions are limited, in both the x- and y- directions, to the distance from the outer edge of one track to the outer edge of another, which outer edge corresponds to the center line of one double track rail to the center line of the adjacent double track rail. (PD ¶166.)

The specification of GB/313 also states that each robot occupies only a single grid space in the storage system. (PD ¶167; EX1004, 5:38-39 (“Advantageously, each load handling device occupies only a single grid space.”), 7:40-8:2 (“Each load handling device occupies a single grid space, corresponding

to the area occupied by only one stack of containers.”), 10:40-11:1 (“In other words, the vehicle 102 occupies a single grid space in the storage system.”.) The specification explains that “the footprint of the vehicle 102 is larger than the size of a bin 106 only enough to accommodate the wheels 116, 118 either side of the [cavity] 120.” (EX1004, 10:39-40.) As a result, “the vehicle 102 therefore takes up the minimum possible amount of space in the X-Y plane, and has a footprint approximately half that of the prior art cantilever design.” (*Id.* 11:1-3.)

C. Ground 3: The ’178 Patent, in Light of GB/104, Renders Obvious Claim 19 of the ’025 Patent.

As described, claim 19 is only entitled to an effective filing date of June 16, 2015, the filing date of PCT/EP2015/063415. *See supra* at Section XI.B.1. GB/104 has a publication date of May 13, 2015, and thus is prior art under 35 U.S.C. § 102(a)(1).

Figure 7 of GB/104 is substantively identical to Figure 7 of the ’178 Patent (which, as discussed above, discloses the elements of each of the challenged claims), but it was made publicly available by the UK patent office at a higher resolution. (PD ¶169.) Compared to Figure 7 of the ’178 Patent, Figure 7 in GB/104 more clearly shows the “double track” construction of the depicted rails, including the centerline that divides each rail element.

from which claim 19 depends) but wanted to implement the single space robots and more efficient structure that allowed single space robots to pass on adjacent grid spaces and “reduce[ed] the likelihood of one device obstructing the optimum path of another” (EX1003, 5:42-47), could look to GB/104, the counterpart of the ’178 Patent, to see the higher resolution version of Figure 7 disclosed in GB/104 and its disclosure of paired, double track rails. (PD ¶170.) By doing so, he or she would likely succeed in creating double track rails, as these are clearly shown in Figure 7 of GB/104. (*Id.*)

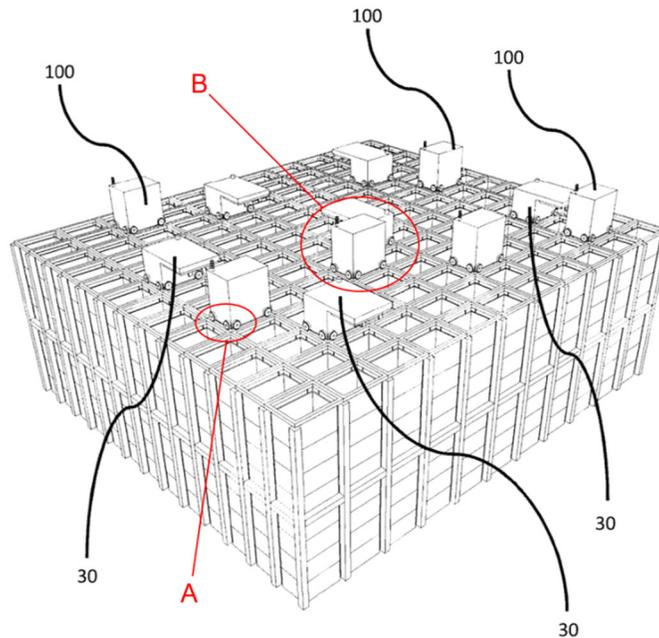


Figure 7

(PD ¶170.)

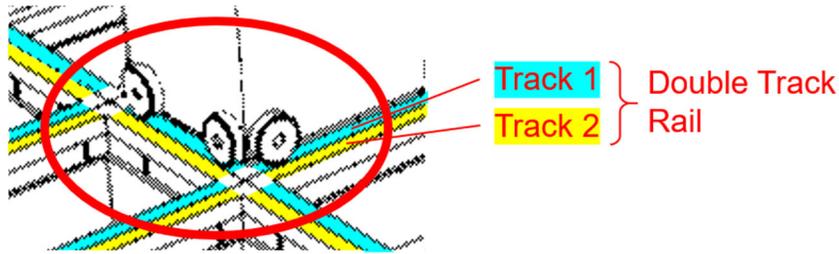


Figure 7(A)

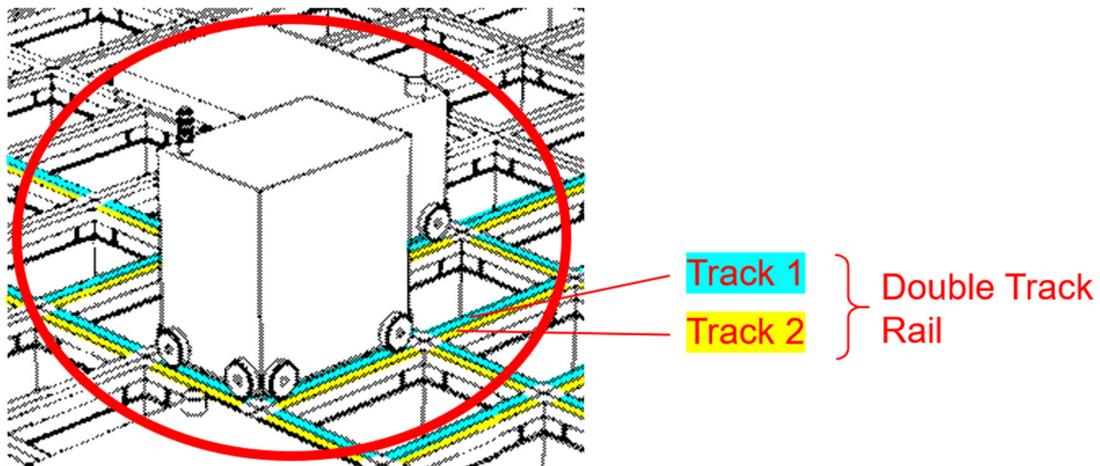


Figure 7(B)

(PD ¶170.)

Accordingly, the combination of the '178 Patent and GB/104 render obvious claim 19.

D. Ground 4: WO901, in Light of WO/789, Renders Obvious Claims 1 and 18-20 of the '025 Patent

WO/901 relates to “improved systems and methods for the stacking of containers in fully or semi-automated storage and retrieval systems,” using a grid structure. (PD ¶172; EX1010, [0002], [0056].) WO/901 discloses an overhead “load handler” configured to (1) use a hoist to lift containers from, or lower them

onto the top of a stack (EX1010, [0055], [0059]); (2) transport the containers within a space within the load handler to different locations on the grid (*Id.* [0060]; and Fig. 6); (3) travel along the rails of the grid using two sets of perpendicularly arranged wheels (*Id.* [0056], [0057]); and (4) use a “lifter or other mechanism” to “select which set of wheels engage with the track and thereby control the direction of travel along the rails” (*Id.* [0057]). (PD ¶173.) WO/901 also discloses a double track rail system, and a single space robot as the “overhead load handler.” (*See* EX1010, Fig. 6; PD ¶174.)

WO789 discloses a vehicle under control of a central computer for transporting storage containers in a warehouse structure comprised of aisles, in which each aisle “houses a corresponding pair of longitudinal rails or guides,” crossed by “transverse rails or guides . . . which are orthogonal to, and intersect, the longitudinal rails.” (EX1011, 4:10-24; PD ¶175.) The direction of travel may be changed by “raising” one set of wheels and “resting” the other set on the rails. (EX1011, 7:12-14.) WO/789 also discloses the use of an “electric motor” connected to “lever mechanisms” to bring about “the . . . vertical displacement of the system of wheels.” (*Id.* 8:4-10; PD ¶176.)

As shown below, the combination of WO/901 and WO/789, together with the knowledge and understanding of a POSITA, discloses each of the

elements of claims 1 and 18-20 and renders each obvious. (PD ¶177.) A POSITA would have been motivated to combine these reference because both relate to the same field, remote controlled vehicles for warehouse storage and retrieval, and because WO/789 discloses mechanism to implement the wheel displacement disclosed in WO/901. (PD ¶178.) The only element of claim 1 of the '025 Patent that this combination does not expressly disclose—locating the motor above the cavity—was obvious to try, given the limited number of choices, and the fact that a POSITA would understand that the claimed location was the one most likely to be successful. (PD ¶179.)

1. Claim 1:

a. Claim 1 (Preamble)

WO/901 discloses the remotely operated vehicle for picking up storage bins recited in the preamble of claim 1. (PD ¶180.) WO/901 discloses a moveable “load handler” which is a “robotic” vehicle that “operate[s]” on a grid using “wheels.” (EX1010, [0006].) The robot is able to “pick up the top bin from a stack guided by rails in a large grid.” (*Id.* [0004].) It is also remotely operated by a “control system” that “can be configured to . . . control the . . . operations of the . . . load handlers.” (*Id.* [00109].) The control system includes a processor and “wireless communication” with, *e.g.*, the “load handler.” (*Id.* [00116].)

The “overhead load handler 4” shown in Figure 6 in WO/901 is configured to use a “hoist and gripper” for the “addition or removal of a container from the top of the stack.” (*Id.*; PD ¶¶183-84.) As shown in Figure 6, the overhead loader is positioned directly over a stack of bins—as indicated by the use of the term “overhead” to describe the robot. The robot then uses the hoist/gripper to pull a container or bin from *that* stack into the overhead load handler itself, for transport over the top of the grid to another location. (*See* EX1010, [00108], [00110]; and Fig. 6; PD ¶184.)

A POSITA would understand that, in order to carry out these operations, the robot load handler necessarily includes a recess in the interior of the robot itself, *from which* the gripper apparatus may be lowered by the hoist, and *into which* a container may be received for transport over the top of the grid. (PD ¶185.) In addition, a POSITA would recognize that a cavity is required for the robot to transport a container over the top of the grid, because if the container was not carried fully within the robot itself, its movement would be blocked by the rails. (PD ¶185.) It would be obvious to a POSITA, based on Figure 6 itself, the discussion regarding Figure 6 in WO/901, and his or her own knowledge, that Figure 6 discloses a robot with a cavity for receiving a bin. (PD ¶186.)

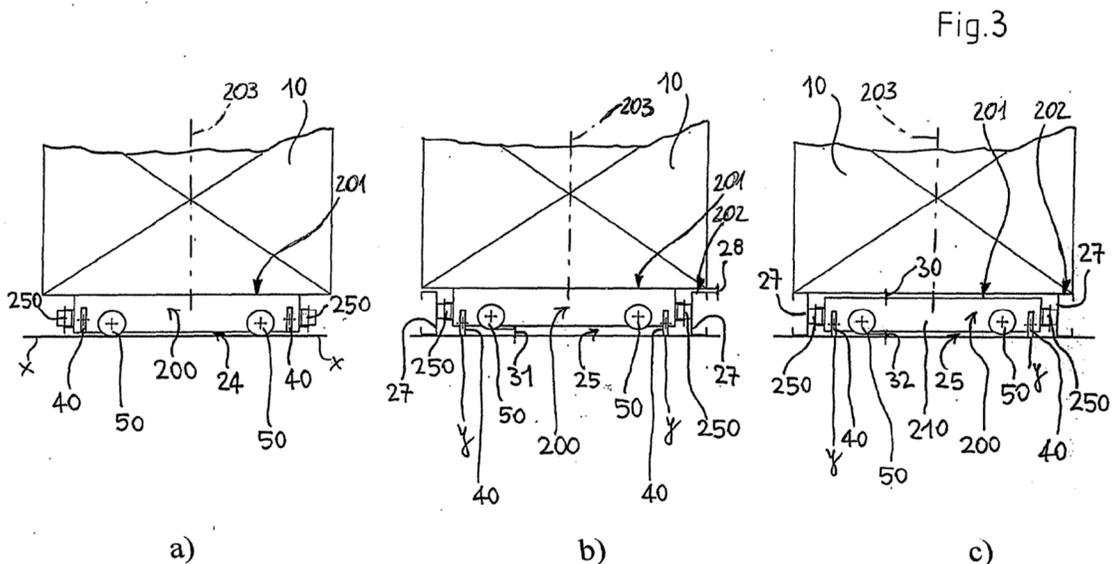
c. Claim Limitation 1(b)

Figure 6, and the corresponding discussion in WO/901, also discloses a “lifting device connected to the vehicle body for lifting the storage bin into the cavity, as recited in limitation 1(b). (PD ¶187.) WO/901 discloses that the overhead load handler includes a “hoist and gripper” for “add[ing] or remov[ing] . . . a container from the top of the stack.” (EX1010, [00110].) Specifically, the robots “use a hoist **8** or other device to lower a gripper **6**,” by way of “wires, ropes, tapes or other cable-like mechanisms,” to “engage and lift the container **1** from the top of the stack **3**.” (*Id.* [0055], [0059]; PD ¶188-89.) Accordingly, WO/901 discloses limitation 1(b).

d. Claim Limitation 1(c)

As discussed above, the '025 Patent discloses that the driving means recited in this element of claim 1 comprises two sets of wheels, arranged perpendicularly, for lateral travel in the X- and Y- directions. (*See supra* at pp. 16-17; PD ¶191.) WO/901 discloses limitation 1(c), stating that the disclosed load handler “can have two sets of perpendicular wheels for engaging the track,” along with a “lifter or other mechanism” to “select which set of wheels engage with the track.” (PD ¶192; EX1010, [0056]-[0057].)

WO/789 also discloses this claim element. (PD ¶193.) It discloses a rail system in which pairs of “longitudinal rails” intersect “orthogonal”—perpendicular—to a second set of “transverse rails.” (EX1011, 4:20-24.) The vehicles, under the control of a “central control” unit, are used to transfer “load units”—containers—within an “automated warehouse.” (*Id.* 1:34-2:3, 2:35-3:3.) The disclosed vehicle has two sets of wheels arranged around the exterior of the vehicle: “a system of wheels **40** so that it can run parallel to the axis y and a system of wheels **50** so that it can run parallel to the axis x.” (*Id.* 6:3-6; and Fig 3.)



(PD ¶193.)

Accordingly, both WO/901 and WO/789 disclose limitation 1(c).

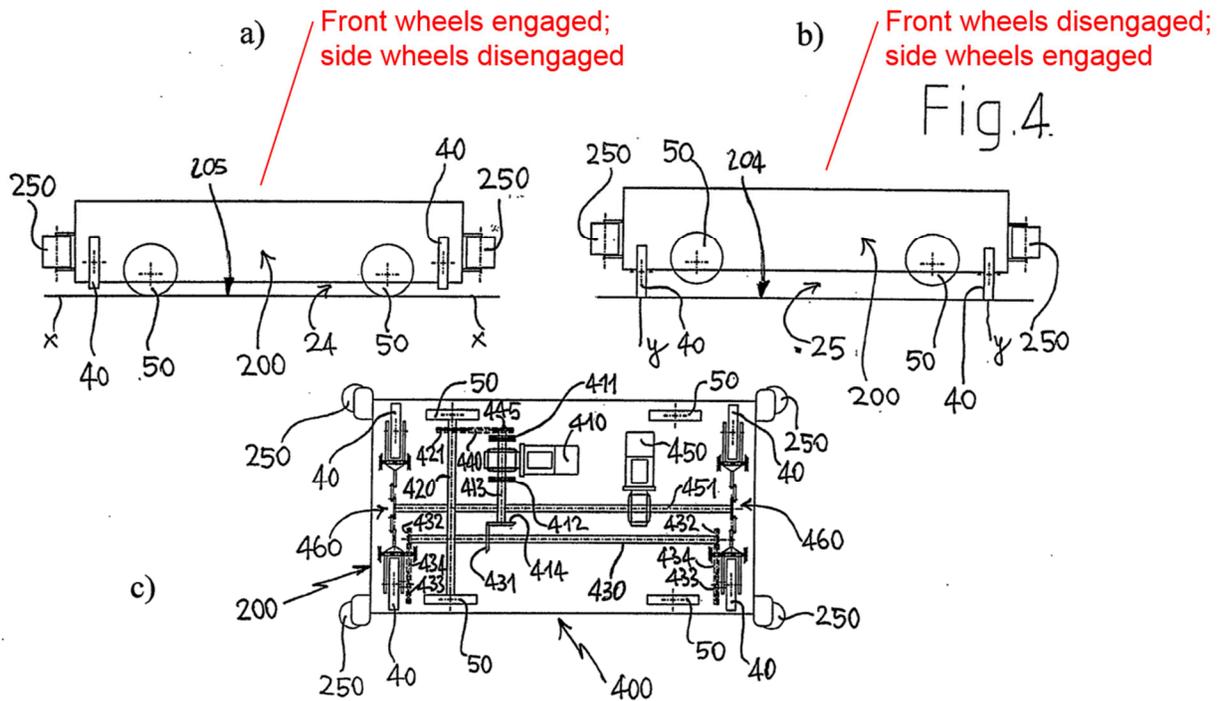
e. Claim Limitation 1(d)

Claim limitation 1(d) recites a “displacement arrangement coupled to the driving means”—sets of wheels—for moving a set of wheels from a “non-displaced state” in contact with the rails, and a “displaced state” in which the wheels away from the rails. (PD ¶196.) The claim recites that this displacement is accomplished by means of a “displacement motor.” (PD ¶196.)

WO/901 discloses that the robotic load handler vehicle includes such an arrangement, specifically, “a lifter or other mechanism which is used to select which set of wheels engage with the track and thereby control the direction of travel along the rails.” (EX1010, [0057]; PD ¶197.) A POSITA would understand from this disclosure that the “lifter or other mechanism” makes this selection by “lifting” or displacing a set of wheels onto or away from the track (to “engage” or not engage with the track). (PD ¶197.)

WO/789 also discloses that the direction of travel can be changed by alternating between displaced and non-displaced wheel states. (PD ¶198.) The robot of WO/789 includes a mechanism so that “the wheels **50** are brought into contact with the surface **205**” or “the wheels **40** are . . . lifted with respect to the surface 204.” (EX1011, 7:9-14 (mechanism is also used to “rais[e] the wheels **50**

and rest[] the wheels **40** on the rails”; *see id.* Figs. 4(a) & 4(b) (showing transition between displaced and non-displaced states for wheel sets **40** and **50**.)



(PD ¶199.)

WO/789 also explains how the transition between displaced and non-displaced states is accomplished, using a motor coupled to the wheels (PD ¶200):

The mechanism **400** comprises a second electric motor **450** for actuating, by means of a shaft **451**, two lever mechanisms **460** (not described in detail), which are connected to the ends of the shaft **451** and bring about the relative vertical displacement between the body **210** and a supporting frame of the wheels **40** (in a similar way, it

is possible to obtain a vertical displacement of the system of wheels **50**).

(EX1011, 8:4-10; *see also id.* Fig. 4(c).). In other words, WO/789 discloses that an electric motor is coupled to the wheels through a shaft and a lever mechanism to transition the wheel sets between displaced and non-displaced states. (PD ¶201.)

A POSITA trying to implement WO/901's disclosure of a "lifter or other mechanism" for engaging or disengaging the wheels would look to the WO/789 to understand that this may be accomplished by using a motor coupled to the wheels through a lever, with a strong likelihood of success. In fact, the likelihood of success in combining WO/901 and WO/789 is underscored by the fact that the same type of displacement arrangement using a motor and lever mechanism was subsequently disclosed in both the '025 Patent and in the '178 Patent. (PD ¶202.) Accordingly, this element of claim 1 of the '025 Patent is rendered obvious by WO/901 in light of WO/789.

f. Claim Limitation 1(e)

Limitation 1(e) recites that the displacement motor is located in a lateral plane above the cavity of the robot. (PD ¶204.) Neither WO/901 nor WO/789 expressly discloses the location of the motor used to displace the wheels. However, a POSITA relying on the disclosure of WO/789 to use a motor coupled

to the wheels to implement the “lifter or other mechanism” disclosed in WO/901 to raise or lower a wheel set, would naturally place the motor in a lateral plane above the cavity. Putting the motor in this location certainly would be obvious to try.

(PD ¶205.) As the Supreme Court explained in *KSR*, [w]hen there is a design need . . . to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp.” If successful, the “obvious to try” solution “is likely the product not of innovation but of ordinary skill and common sense” thus obvious under § 103. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 389, 421 (2007).

Thus, an invention may be invalid as “obvious to try” where a claim limitation is chosen from “a finite number of identified, predictable solutions, with a reasonable expectation of success.” *Id.* at 417.

Following *KSR*, the Federal Circuit has repeatedly held that, where there are only a few predictable design choices for solving a problem, each is obvious. *Uber Techs., Inc. v. X One, Inc.*, 957 F.3d 1334, 1340 (Fed. Cir. 2020) (where terminal-side and server-side plotting were the only known solutions for plotting locations, it would have been obvious to substitute server-side for terminal-side plotting).

Putting the displacement motor above the cavity is obvious here for the same reason as in *Uber*. There are really only three possible locations: In the cavity, to the side of the cavity, or above the cavity. (PD ¶206.) Locating the motor within the cavity is unlikely to be successful, as such placement would interfere with the gripper/hoist system for lifting containers into the cavity, and indeed would not permit the placement of a container in the cavity. (PD ¶207.) This leaves only two potentially successful choices—alongside the cavity or above the cavity—and each is obvious. *See ACCO Brands Corp. v. Fellowes, Inc.*, 813 F.3d 1361, 1367 (Fed. Cir. 2016) (explaining that where an “ordinary artisan would . . . be left with two design choices . . . [e]ach of these two design choices is an obvious combination”). Moreover, locating the displacement motor in a lateral plane alongside the cavity is not the natural choice for the motor location because it would likely impact on the available volume inside the cavity or would require careful placement to avoid extending beyond the cross sectional area available to a single space robot; a motor mounted next to, but outside of, the cavity would likely extend past the wheels and over the single track allotted to single space robot, and into the path of another robot. (PD ¶208.) A POSITA would therefore avoid locating the displacement motor in this region of the vehicle. The only other

choice available—and the one most likely to be successful—is to locate the motor in a lateral plane above the cavity, as claimed in claim 1 of the '025 Patent. (*Id.*)

g. Claim Limitation 1(f)

Limitation 1(f) recites the use of the motor to generate a “pressure force” to displace the wheels of the robot, and this limitation simply refers to the fact that rotating motor draws a set of wheels up and away from contact with the rails, or pushes the set of wheels down, into contact with the rails. (PD ¶211; *see supra* at Section XI.A.1.g.)

WO/789 also discloses the use of a motor to create a pressure force to draw the wheels up or push them down. (PD ¶212.) WO/789 explains that, by operating the motor **450**, a “vertical displacement” of the wheels is obtained through the connection of the motor to a lever mechanism **460** connected to a shaft **451**. (EX1011, 8:4-10.) Thus, it discloses that the operation of the motor can create an upward pressure force, “lift[ing]” the wheels away from the rails, or a downward force, “resting” them on the rails. (PD ¶212.)

* * *

WO/901, in light of WO/789 and the knowledge and skill of a POSITA, discloses and renders obvious all of the elements of claim 1 of the '025 Patent.

2. Claim 18

a. Claim 18 (Preamble)

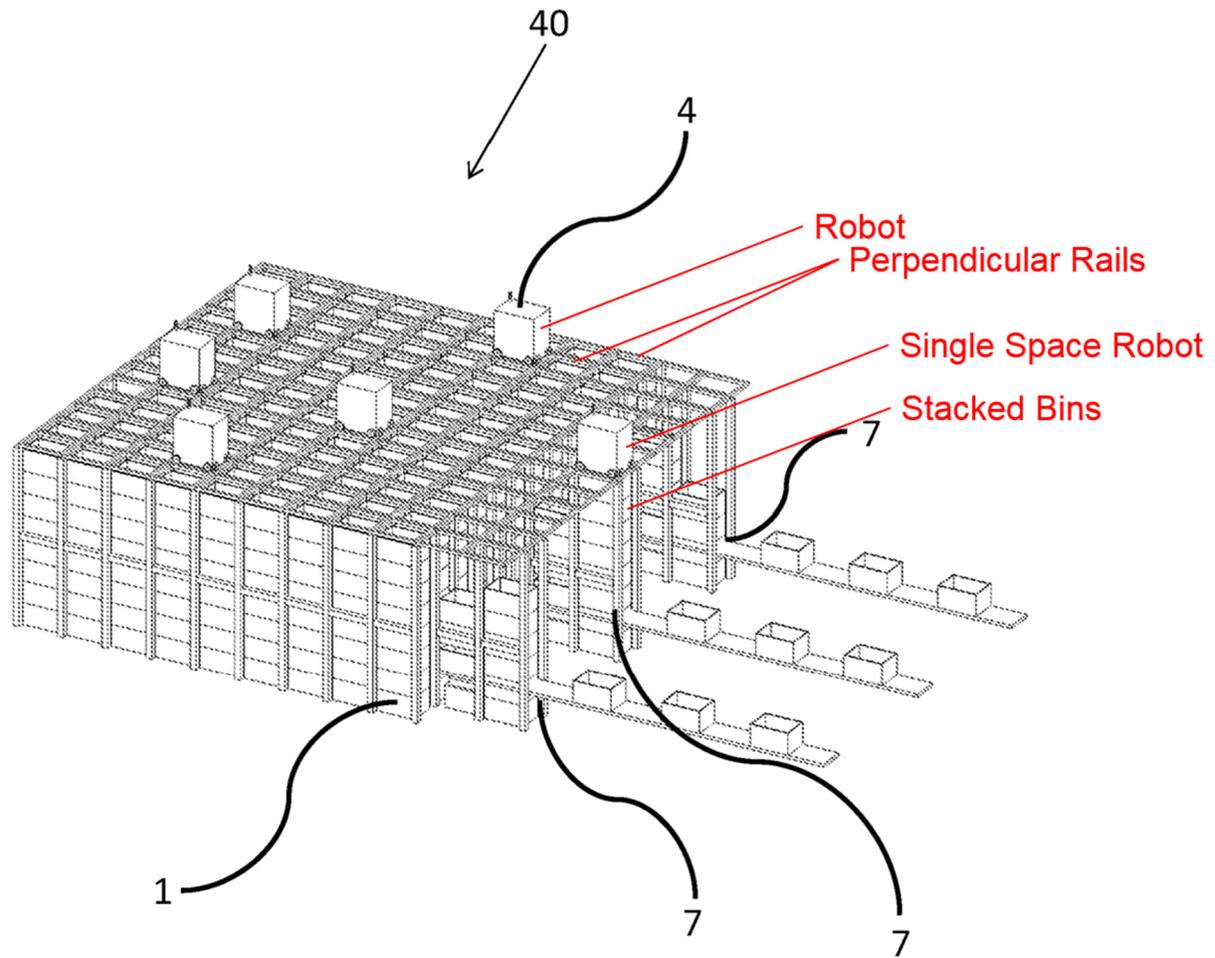
As discussed above, *see supra* at Section XI.D.1.a., WO/901 discloses the preamble of claim 18. (PD ¶214.)

b. Claim Limitation 18(b)

As shown above, *see supra* at Section XI.D.1., WO/901, in light of WO/789 and the knowledge and skill of a POSITA, discloses and renders obvious all of the elements of claim 1 of the '025 Patent. (PD ¶215.)

c. Claim Limitation 18(c)

The vehicle support and bin storing structure set out in claim 18 are fully disclosed in the WO/901, which describes a storage system for “bins or other containers, . . . organized in grids of stacked . . . containers [which may] comprise freestanding stacks, and/or stacks supported by frames.” (EX1010, [0051]; PD ¶216.) It also discloses that “the grid 2 can provide a structural framework” for rails 16 arranged as “perpendicular tracks.” (*Id.* [0056].) The rails in turn provide a support for “robotic load handlers 4 . . . configured to travel along the rails to access the various stacks 3 in the system.” (*Id.* [0057].) This is illustrated, *inter alia*, in Figure 6 of WO/901:



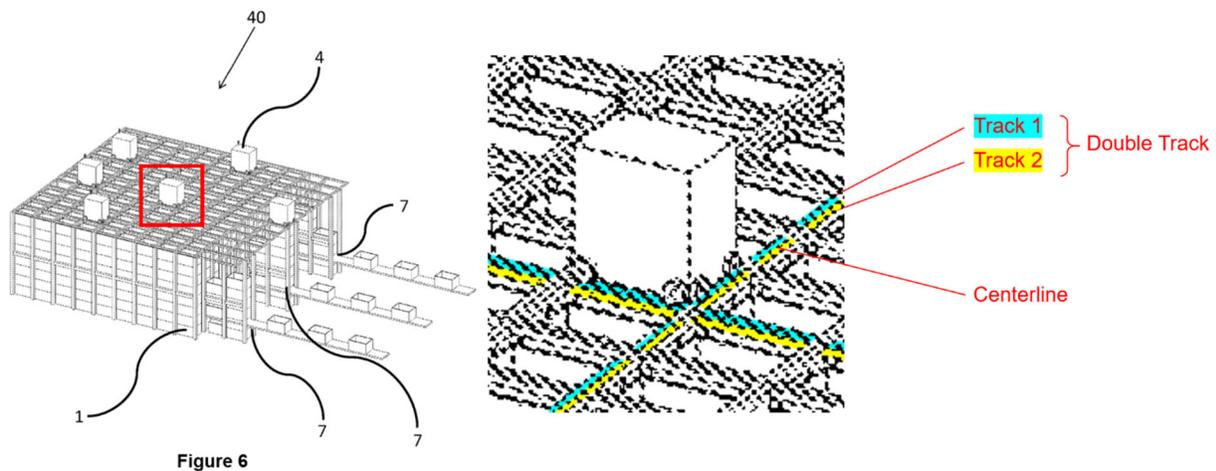
(PD ¶216.)

Thus, WO/901, in light of WO/789 and the knowledge and skill of a POSITA, discloses and renders obvious all of the elements of claim 18 of the '025 Patent. (PD ¶217.)

3. Claim 19

As discussed above, *see supra* at Section XI.A.3., Claim 19 of the '025 Patent recites “double track” rails. (EX1001, 10:31-32.)

A double track rail system is disclosed Figure 6 of WO/901. (PD ¶219.) As Dr. Pfeifer explains, Figure 6 clearly discloses that each grid space is framed by dual tracks on a single rail member, as shown by the cutout from Figure 6. (PD ¶219.)



(PD ¶219.)

Figure 6 shows a double track grid system that, like that disclosed in the '025 Patent, allows properly sized robots to pass one another over adjacent grid spaces.

(PD ¶220.)

4. Claim 20

Claim 20 is directed to a single-space robot. (*See supra* at Section XI.A.4.; PD ¶222.) Dr. Pfeifer explained that a POSITA would understand that Figure 6 of WO/901 discloses robots that occupy a single grid space defined by the

distance from the centerline of one rail to the centerline of the other rail that defines the grid space:

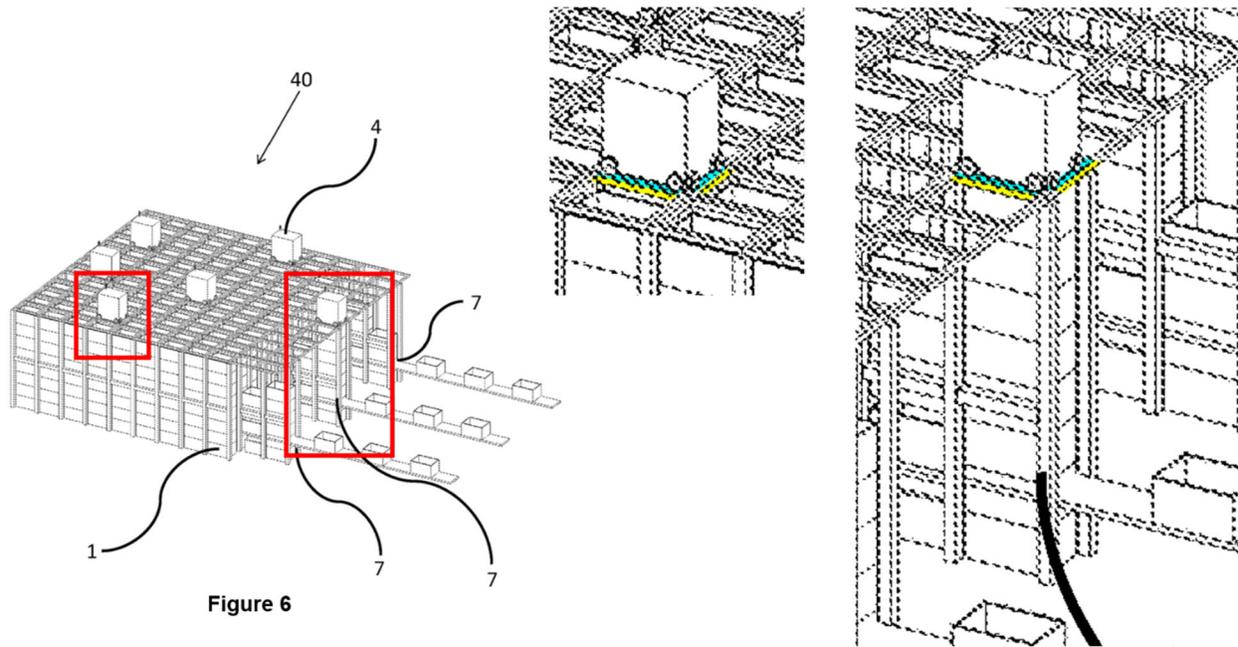


Figure 6

(PD ¶222.)

Thus, WO/901, in light of WO/789 and the knowledge and skill of a POSITA, discloses and renders obvious all of the elements of claim 20 of the '025 Patent.

E. The Board Should Institute Trial on the Petition.

1. The Board Should Not Exercise Discretion to Deny Institution Under U.S.C. § 325(d)

As shown above, Ocado has established a reasonable likelihood of prevailing against each of Claims 1 and 18-20. Patent Owner may nonetheless argue that the Board should exercise its discretion to deny institution under 35 U.S.C. § 325(d). While neither the '178 Patent, GB/313, GB/104 or WO/901 were

considered or cited during prosecution, U.S. Pat. No. 10,000,337 (“’337 Patent”), which is a parent of the ’178 Patent, was cited by the Examiner in the List of References as part of the Final Rejection issued on December 18, 2018, a final rejection which did not include any § 102 or § 103 rejections. (EX1014.)

However, the Examiner gave no substantive consideration to the ’337 Patent.

Likewise, while WO/789 is listed on the face of the ’025 Patent, there is no indication whatsoever that the Examiner ever considered them substantively, much less that he considered their combination. The only reference to WO/789 is in an IDS filed on December 15, 2016. (EX1015.)

The Examiner never applied any of these references in an office action to reject any of the pending claims. Nor did the Examiner substantively discuss or analyze these reference, or any of their family members, in an office action or any other correspondence with the applicants. Nothing in the prosecution history of the ’025 Patent weighs against institution under 35 U.S.C. § 325(d). *See, e.g., TomTom, Inc. v. Smart Wearable Techs. Inc.*, IPR2017-01826, Paper 12, at 12 (PTAB Jan. 30, 2018) (granting institution over patent owner’s 35 U.S.C. § 325(d) objection where examiner did not substantively consider references during prosecution); *Limelight Networks, Inc. v. Akamai Techs., Inc.*, 2017 WL 951220 , at *8 (PTAB Mar. 8, 2017) (“We are not persuaded on this record that a citation to

Speedera in an IDS, without substantive discussion of the reference by the Examiner, is sufficient reason to exercise our discretion under 35 U.S.C. § 325(d) to decline to institute an *inter partes* review.”).

Furthermore, Dr. Pfeifer’s testimony was not before the Office during the prosecution of the ’025 Patent, and thus could not have been considered by the Examiner. This new testimony interpreting the disclosures of the ’178 Patent, and the WO/901/WO789 combination, favors granting institution. *See, e.g., Par Pharm., Inc. v. Horizon Therapeutics, LLC*, IPR2017-01767, Paper 10, at 18 (PTAB Jan. 30, 2018) (“Even if the Examiner of the application that became the ’278 patent considered the prior art cited in the challenges, it is not clear that the teachings were supported by the testimony of a qualified witness regarding what one of ordinary skill in the art would have understood about these teachings. Accordingly, we do not consider the same challenges to have been considered by the Examiner.”); *Celltrion, Inc. v. Genentech, Inc.*, 2018 WL 575353, at *5 (PTAB Jan. 25, 2018) (“Here, relying on the Declaration of Dr. Ratain, which were not before the Examiner during prosecution, Petitioner presents the prior art in a new light. . . . Based upon these differences in the current record, we exercise our discretion not to deny the Petition under § 325(d).”).

In sum, the prosecution history of the '025 Patent is no obstacle to instituting trial on Ocado's challenges in this Petition. None of the asserted references were considered substantively by the Examiner. Nor could the Examiner consider Dr. Pfeifer's testimony during prosecution.

2. The Board Should Not Discretionarily Deny Institution Because of a Recently Initiated ITC Investigation

Patent Owner may argue that the Board should exercise discretion under 35 U.S.C. § 314 to deny institution of IPR because of an ITC proceeding instituted by the Commission on November 2, 2020.⁵ (*See* EX1006.) Denial is not warranted, and doing so on the facts presented here would be tantamount to ruling that IPR is never available to a petitioner that also is named a respondent to an ITC complaint, no matter how quickly the petitioner acted to file the IPR petition. Petitioner respectfully submits that such a rule would not best serve the efficiency and integrity of the U.S. patent system, the applicable legal standard.

In exercising its discretion under § 314, the Board considers the six factors summarized in *Apple Inc. v. Fintiv, Inc.*, 2020 WL 2126495, at *2 (PTAB Mar. 20, 2020). In doing so, "the Board takes a holistic view of whether efficiency

⁵ A district court proceeding was also filed by the Patent Owner in the Eastern District of Virginia, but has been stayed. (*See* EX1002.)

and integrity of the system are best served by denying or instituting review.” *Id.*, at *3. Here, in light of the nascent stage of the ITC proceedings, the inability of the ITC proceedings to fully resolve Petitioner’s invalidity claims, and the strength of its Petition, Petitioner respectfully submits that the *Fintiv* factors strongly weigh in favor of instituting IPR.

Factor One: “whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted.” There are five patents at issue in the related ITC proceeding. Based on its review of the claims, Petitioner expects to file IPR petitions requesting cancellation of all of the patent claims asserted, with the last filed no later than December 21, 2020. Contemporaneous with the filing of the last IPR petition, Petitioner will file a motion to stay the ITC investigation. Although the ITC does not routinely grant stays, the facts presented here are compelling and, at a minimum, “evidence exists that [a stay] may be granted if [IPR] is instituted.”⁶ Accordingly, *Fintiv* factor one weighs in favor of institution.

⁶ Certain Board decisions that have discretionarily denied institution of IPR because of pending ITC proceedings specifically noted that the petitioner had not requested nor had indicated that it would request a stay of the ITC proceedings.

Factor Two: the “proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision.” The Petition here was filed on November 30, 2020, only one month after the ITC investigation was instituted. Given the time required to conduct prior art searches and prepare a petition, Petitioner could not have reasonably filed it any sooner. *See Fintiv*, 2020 WL 2126495, at *5 (“If the evidence shows that the petitioner filed expeditiously, such as promptly after becoming aware of the claims being asserted, this fact has weighed against exercising the authority to deny institution.”).

Moreover, an institution decision likely would be made by the Board no later than May 1, 2021, and a final written decision would be issued by May 1, 2022. In contrast, the ITC hearing is currently scheduled for the week of August 2, 2021, and the ALJ’s merits decision is not due until November 2021—months after any IPR institution decision. This is not a case where the ITC proceeding would get so far ahead of the IPR that the latter would not generate meaningful efficiencies for the former. Even if the Board’s final written decision issued shortly after the ALJ’s merits decision, the Board’s cancellation of the asserted

See, e.g., Fitbit, Inc. v. Koninklijke Philips N.V., 2020 WL 6136597 , at *6 (PTAB Oct. 19, 2020). This case stands in contrast to those decisions.

patent claims likely would lead to the ITC modifying, suspending, rescinding or staying the exclusion order. *See, e.g., In re Certain Unmanned Aerial Vehicles and Components Thereof*, Inv. No. 337-TA-1133, 2020 WL 5941991 (ITC Aug. 20, 2020) (enforcement of exclusion order suspended “pending final resolution of a Final Written Decision by the [PTAB] that the asserted claims of the ’184 patent are unpatentable”); *In re Certain Network Devices, Related Software and Components Thereof (II)*, USITC Inv. No. 337-TA-945, 2018 WL 8648380 (ITC July 12, 2018) (staying exclusion order). Accordingly, the Board’s resources would not be wasted, because its IPR decision would likely have a meaningful impact on any ITC exclusion order.

Furthermore, if a slight difference in the deadline for a merits decision from the ITC ALJ and a final written decision from the Board were decisive, then a petition could never be instituted where the patent owner also initiated an ITC proceeding. Petitioner respectfully submits that the decisive question should instead be whether Petitioner, by promptly filing its IPR petition, aligned the IPR and ITC schedules such that efficiencies will still be realized.

In sum, the second *Fintiv* factor should weigh in favor of instituting IPR, or at least be neutral.

Factor Three: the “investment in the parallel proceeding by the court and the parties.” The ITC proceeding is in its earliest stages. Neither party has provided any fact discovery or any analysis of the prior art, and a *Markman* hearing will not occur until April 2021. *Fintiv*, 2020 WL 2126495, at *5 (“If, at the time of the institution decision, the district court has not issued orders related to the patent at issue in the petition, this fact weighs against exercising discretion to deny institution.”). Therefore, instituting an IPR in this case would not result in inefficient use of Board resources. To the contrary, the parties’ submissions to the Board, and the Board’s institution decision and subsequent IPR rulings, would enhance efficiency by addressing issues that may arise later in the ITC proceeding.⁷ Given the very limited investment that has been made in the ITC proceedings, and the potential for the IPR proceedings to generate efficiencies, the third *Fintiv* factor weighs heavily in favor of institution.

Factor Four: the “overlap between issues raised in the petition and in the parallel proceeding.” In the petition, Petitioner is challenging all patent claims

⁷ There has been no investment by the parties in the stayed district court litigation. Thus, the results of the Board’s IPR decision could be outcome determinative in that proceeding once it recommences.

that the Patent Owner has asserted in the ITC proceeding. There are, however, important differences between the questions that would be resolved in IPR and by the ITC, which should weigh in favor of instituting IPR.

Namely, the ITC decides invalidity under a more stringent standard than the Board (clear and convincing evidence, applying a presumption of validity, versus preponderance of the evidence), and the ITC “does not have the power to cancel a patent claim, even if that claim is demonstrated to be invalid.” *3Shape A/S v. Align Tech., Inc.*, 2020 WL 2738516, at *15 (PTAB May 26, 2020) (relying in part on these factors in declining to exercise discretion not to institute IPR). Unlike IPR (or federal court litigation), ITC final invalidity determinations do not have preclusive effect. *See Texas Instruments v. Cypress Semiconductor Corp.*, 90 F.3d 1558 (Fed. Cir. 1996). Thus, absent resolution of Petitioner’s challenges by the Board, the currently stayed District Court litigation could be recommenced regardless of the ITC decision, which Petitioner respectfully submits would be a waste of judicial resources. *See Samsung Elecs. Co. v. Dynamics, Inc.*, 2020 WL 4690101, at *5 (PTAB Aug. 12, 2020) (inability of ITC to provide “definitive resolution” of challenged claims weighs in favor of institution). In light of these differences, the fourth *Fintiv* factor weighs heavily in favor of institution.

Factor Five: “whether the petitioner and the defendant in the parallel proceeding are the same party.” The Petitioner also is the respondent in the ITC proceeding and the defendant in the stayed district court action. Petitioner respectfully submits, however, that such an outcome is obvious and should not weigh against institution of IPR. It is natural that a party accused of patent infringement would seek IPR, and that is exactly what was contemplated and expected by Congress when it created IPR proceedings under the AIA: “to . . . establish a more efficient and streamlined patent system that will . . . limit unnecessary and counterproductive litigation costs.” *3Shape*, 2020 WL 2738516, at *14. The AIA expressly permits IPR petitions to be filed up to one year after a patent infringement complaint is served on a petitioner-defendant. 35 U.S.C. § 315(b). A discretionary standard that would deny institution because the petitioner also is accused of infringement in a related proceeding—regardless of how quickly the petitioner moves to request IPR—would be contrary to the structure and purpose of the AIA. Accordingly, Petitioner submits that the fifth *Fintiv* factor should be considered neutral.

Factor Six: “other circumstances that impact the Board’s exercise of discretion, including the merits.” Petitioner submits that here the Board should consider the *prima facie* strength of Petitioner’s invalidity arguments. *See Fintiv*,

2020 WL 2126495, at *6 (“[I]f the merits of a ground raised in the petition seem particularly strong on the preliminary record, this fact has favored institution.”); *Samsung*, 2020 WL 4690101, at *5 (“[W]e find Petitioner’s argument and evidence on the merits to be persuasive Accordingly, this factor weighs in favor of institution.); *3Shape*, 2020 WL 2738516, at *14 (“On the facts of this proceeding, including the strength of the merits . . . we determine that efficiency and integrity of the system are best served by instituting review.”). Petitioner has presented a clear and strong case on the merits. It would be a huge waste of resources for the parties, ITC, and the District Court in the Eastern District of Virginia all to devote years to litigation over invalid claims. Thus, the sixth *Fintiv* factor weighs heavily in favor of institution.

For the foregoing reasons, the Board should not discretionarily deny institution because a parallel ITC proceeding was recently initiated.

XII. CONCLUSION

The Board should institute trial and issue a final written decision cancelling the challenged claims.

Dated: November 30, 2020

Respectfully submitted,

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CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

I hereby certify that this paper, excluding the portions exempted under 37 C.F.R. § 42.24(a), has:

- 13,559 words as counted by Microsoft Word 2010, the word-processing system used to prepare this paper; and
- 353 words in the illustrations, counted manually.

This paper's total word count, excluding the portions exempted under 37 C.F.R. § 42.24(a), is 13,912 words.

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that on November 30, 2020, a complete copy of the foregoing was served via Federal Express on counsel of record for AutoStore at the correspondence address indicated in PAIR:

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