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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TYE BRADY, GREGORY LONGTINE, and
TIMOTHY STALLMAN

Appeal 2024-004072
Application 17/035,110
Technology Center 3600

Before JOSEPH A. FISCHETTI, MICHAEL C. ASTORINO, and
BRADLEY B. BAYAT, *Administrative Patent Judges*.

BAYAT, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner’s decision to reject claims 1–20, which constitute all pending claims in the application. *See* Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM IN PART.

¹ “Appellant” refers to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies Amazon Technologies, Inc. as the real party in interest. Appeal Br. 2.

CLAIMED SUBJECT MATTER

The claims are directed to flexible, robotic automated storage and retrieval system. Claims 1 and 5, reproduced below, illustrate the claimed subject matter:

1. An automated storage and retrieval system, comprising:
 - a plurality of floors, individual floors including a plurality of storage grid locations connected via a plurality of highway grids;
 - a plurality of elevators connecting the plurality of floors;
 - a plurality of totes, individual totes being positioned at respective storage grid locations, and individual totes being configured to receive respective items;
 - a plurality of robotic drive units configured to traverse the plurality of floors and the plurality of storage grid locations by traveling on respective surfaces of the plurality of highway grids, the plurality of elevators, and the plurality of storage grid locations, individual robotic drive units configured to lift, move, and place respective totes;
 - a plurality of processing stations associated with the automated storage and retrieval system, individual processing stations configured to process items associated with respective totes; and
 - a plurality of service access zones associated with the automated storage and retrieval system, the plurality of service access zones configured to enable access to the plurality of floors, the plurality of storage grid locations, the plurality of highway grids, and the plurality of elevators.

5. A system, comprising:
 - a plurality of floors, individual floors including a plurality of storage grid locations and a plurality of highway grids, and individual storage grid locations configured to receive respective totes;
 - at least one elevator configured to traverse the plurality of floors; and
 - a robotic drive unit configured to traverse the plurality of storage grid locations via respective surfaces of the plurality of

highway grids, the at least one elevator, and the plurality of storage grid locations, the robotic drive unit configured to move a respective tote.

Appeal Br. (Claims App.).

REFERENCES

The Examiner relies on the following references to reject the claims:

Name	Reference	Date
Dewitt	US 2018/0037410 A1	Feb. 8, 2018
Bastian	US 11,235,930 B2	Feb. 1, 2022

REJECTIONS²

The Examiner maintains the following rejections:

Claims 5–7, 10, and 13 are rejected under 35 U.S.C. § 102(a)(2) as being anticipated by Bastian. Final Act. 5.

Claims 1–4, 8, 9, and 14–20 are rejected under 35 U.S.C. § 103 as being unpatentable over Bastian and Dewitt. Final Act. 7.

Claims 11 and 12 are rejected under 35 U.S.C. § 103 as being unpatentable over Bastian. Final Act. 17.

OPINION

Anticipation by Bastian

Independent claim 5 and dependent claims 6, 7, 10, and 13

Independent claim 5 requires, *inter alia*, “a robotic drive unit configured to traverse the plurality of storage grid locations via respective

² “[T]he rejection of claims 1–20 under 35 U.S.C. [§] 112(a) for lack of written description is withdrawn.” Adv. Act. 2 (Advisory Action mailed Dec. 28, 2023, hereinafter “Advisory Act.”).

surfaces of the plurality of highway grids, the at least one elevator, and the plurality of storage grid locations, the robotic drive unit configured to move a respective tote.” Appeal Br. 11.

In contesting the rejection of claim 5 as being anticipated by Bastian, Appellant argues that

the cited sections of Bastian do not disclose a robotic drive unit that is configured to traverse “via respective surfaces of the plurality of highway grids, the at least one elevator, and the plurality of storage grid locations.” Appellant respectfully submits that the shuttle of Bastian does not traverse at least via surfaces of the plurality of storage grid locations because the shuttle travels along rails of the shuttle frame “and on a surface *outside* of the rack system,” in which the “rack has storage locations for containers.” As a result, the Abstract of Bastian makes clear that its shuttle at least does not traverse via surfaces of the storage locations of its rack because the shuttle remains “*outside* of the rack system.”

Appeal Br. 6.

In particular, Appellant argues that “the cited sections related to the container transfer mechanism of Bastian are inapplicable to the above-recited features of claim 5” because “nowhere do the cited sections of Bastian describe or suggest that the shuttle itself traverses via respective surfaces of the plurality of storage grid locations.” *Id.* at 7 (citing Final Act. 3; Adv. Act. 2). Appellant states that “the plain meaning of the term ‘via’ is defined as ‘by way of’ or ‘by means of,’ such that the robotic drive unit traverses, travels on, or moves to storage grid locations by way of, or by means of, respective surfaces of . . . the plurality of storage grid locations” (Reply Br. 7). According to Appellant, “[a]lthough the container transfer mechanism of Bastian may extend from the shuttle toward storage locations of the rack, there is absolutely no discussion of the shuttle of Bastian

traversing along any surfaces of the plurality of storage grid locations” and “one of ordinary skill in the art would not consider extension of the container transfer mechanism of Bastian from the shuttle toward storage locations to somehow constitute disclosure of the shuttle of Bastian traversing via respective surfaces of the plurality of storage grid locations.” *Id.* at 5. We are persuaded by Appellant’s argument.

Bastian does not anticipate claim 5 because “rejections under 35 U.S.C. § 102 are proper only when the claimed subject matter is identically disclosed or described in the prior art.” *In re Arkley*, 455 F.2d 586, 587 (CCPA 1972) (emphasis and internal quotation marks omitted). Here, in response to Appellant’s argument, the Examiner maintains that Bastian’s container transfer mechanism including “extendable conveyors (740) configured to extend laterally from the shuttle to a position underneath a target container *inside* a storage rack location” anticipates the limitation “a robotic drive unit configured to traverse the plurality of storage grid locations via respective surfaces of . . . the plurality of storage grid locations” as required by claim 5. Ans. 5. We agree with Appellant “that the shuttle of Bastian does not traverse at least via surfaces of the plurality of storage grid locations because the shuttle travels along rails of the shuttle frame ‘and on a surface outside of the rack system,’ in which the ‘rack has storage locations for containers.’” Reply Br. 3–4. In other words, even though Bastian’s “extendable conveyors or other container transfer mechanisms can store and retrieve containers from storage locations, the shuttles of Bastian clearly do not traverse via respective surfaces of the storage locations of the rack system.” *Id.* at 6.

The Examiner admits that Bastian’s “rack system includes a plurality of racks **(205)** with storage locations in which items are stored, and a shuttle frame **(210)** on which the shuttles are *able to travel alongside the racks* when storing and retrieving containers from storage locations” and that the shuttles “access various storage locations along the racks at different storage rack levels.” Ans. 4. Yet, the Examiner states, without any supporting citations or evidence, that “*Bastian* expressly teaches an autonomous mobile robot configured to travel vertically and horizontally across storage grid locations via travel lanes and elevator sections of the shuttle frame *within the rack system*” (*id.* at 6).

We have reviewed the citations to Bastian and we agree with Appellant that “[n]one of the cited sections of Bastian describes that its shuttles ‘travel vertically and horizontally **across** storage grid locations . . . **within the rack system.**’” Reply Br. 6. Rather, Bastian expressly discloses that “[t]he shuttle frame **3615** allows the shuttles **3605** to travel *along* the racks **3610** and service the various storage rows **215**, rack columns **220**, and rack levels **225**” (Bastian 19:63–65), “the travel lanes **310** of the shuttle frame **3615** includes one or more rack rails **320** *along* which the shuttles **3605** travel between the racks **3610**” and “[t]he shuttles **3605** are able to independently move along the floor *outside of the storage rack* system **3600** so as to transfer items between various external service locations and the storage rack system **3600**.” Bastian 20:6–12 (emphasis added). As such, the cited sections of Bastian do not anticipate the disputed limitation of claim 5.

Accordingly, we do not sustain the rejection of claim 5 as being anticipated by Bastian and claims 6, 7, 10 and 13, which depend from claim 5.

Obviousness over Bastian

Dependent claims 11 and 12

We do not sustain the rejection of claims 11 and 12, which depend from claim 5, for the reasons discussed above.

Obviousness over Bastian & DeWitt

Independent claim 1 and dependent claims 2–4, 8, 9, 14, and 15

Independent claim 1 recites “a plurality of robotic drive units configured to traverse the plurality of floors and the plurality of storage grid locations by traveling on respective surfaces of ... the plurality of storage grid locations” which is similarly rejected as claim 5 under Bastian. *See* Final Act. 7. For the same reasons discussed above, we do not sustain the rejection of claim 1 and dependent claims 2–4.

We do not sustain the rejection of claims 8, 9, 14, and 15, which depend from claim 5, for the same reasons. Additionally, we note that the Examiner does not rely on DeWitt to remedy the deficiency discussed above.

Independent claim 16 and dependent claims 17–20

Independent claim 16 recites:

A method, comprising:

determining, by a controller, a respective floor of a plurality of floors associated with a respective tote, the plurality of floors being connected by at least one elevator;

determining, by the controller, a respective storage grid location of a plurality of storage grid locations on the respective floor associated with the respective tote; and

instructing, by the controller, a robotic drive unit to move to the respective tote at the respective floor and the respective storage grid location via respective surfaces of at least a portion of a plurality of highway grids, the at least one elevator, and the plurality of storage grid locations.

In contesting the rejection of claim 16 as unpatentable over Bastian and DeWitt, Appellant only argues that *instructing* step of claim 16. *See* Appeal Br. 5. Appellant’s arguments however are directed to Bastian because Appellant asserts: “Claims 1 and 16 include features similar to those discussed above with respect to claim 5. Further, DeWitt is not asserted to cure the deficiencies noted above with respect to Bastian.” Appeal Br. 18; Reply Br. 8.

In rejecting claim 16 as unpatentable over Bastian and DeWitt, the Examiner however relies on Dewitt not Bastian to reject the disputed *instructing* step. *See* Final Act. 11–14. As such, Appellant’s arguments do not apprise us of error in the Examiner’s finding as to DeWitt. Thus, we sustain the rejection of claims 16 and dependent claims 17–20, which are not argued.

CONCLUSION

The rejection of claims 5–7, 10, and 13 as anticipated by Bastian is REVERSED.

The rejection of claims 1–4, 8, 9, 14, and 15 as unpatentable over Bastian and DeWitt is REVERSED.

The rejection of claims 16–20 as unpatentable over Bastian and DeWitt is AFFIRMED.

The rejection 11 and 12 as unpatentable over Bastian is REVERSED.

DECISION SUMMARY

The following table summarizes our decision:

Claim(s) Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
5–7, 10, 13	102	Bastian		5–7, 10, 13
1–4, 8, 9, 14–20	103	Bastian, Dewitt	16–20	1–4, 8, 9, 14, 15
11, 12	103	Bastian		11, 12
Overall Outcome			16–20	1–15

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED IN PART