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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO. Includes details for application 14/789,198 and 30734 7590, listing inventor HONGJUN JIANG, attorney 87280.50420, examiner RUBY, TRAVIS C, art unit 3763, and notification date 06/10/2020.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HONGJUN JIANG and ANDJELKO PISKURIC

Appeal 2019-004451
Application 14/789,198
Technology Center 3700

Before JENNIFER D. BAHR, EDWARD A. BROWN, and
GEORGE R. HOSKINS, *Administrative Patent Judges*.

HOSKINS, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–3, 5–8, 10–18, and 20 in this application.²

We AFFIRM IN PART and enter a NEW GROUND OF REJECTION pursuant to our authority under 37 C.F.R. § 41.50(b).

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies SPX Cooling Technologies, Inc., as the real party in interest. Appeal Br. (filed Apr. 19, 2018), 1.

² Claims 4 and 19 are canceled. Appeal Br. 1. The Office Action on appeal does not enter a rejection against claim 9. Final Act. (dated Oct. 6, 2017), 2–9. Therefore, we do not discuss claim 9 in this decision.

CLAIMED SUBJECT MATTER

Claim 1 is the sole independent claim on appeal, and it recites, with our emphasis added:

1. A heat exchange module for use in a cooling tower, the heat exchange module comprising:
 - fill packing;
 - a firewall structure*, wherein the firewall structure is transportable; and
 - a structural system that provides support for at least the fill packing, the structural system comprising a plurality of structural members that provides compression and tension support for the cooling tower.

Claims App. (filed June 1, 2018), 2 (emphasis added).

REJECTIONS ON APPEAL

Claims 1–3, 6–8, 10, 16–18, and 20 are rejected under 35 U.S.C. § 102(a)(1) as anticipated by *Reverdv* (US 4,913,710, iss. Apr. 3, 1990).

Claims 5 and 11–15 are rejected under 35 U.S.C. § 103 as having been obvious over *Reverdv* and *Bland* (US 2006/0053727 A1, pub. Mar. 16, 2006).

OPINION

A. Anticipation by Reverdv (Claims 1–3, 6–8, 10, 16–18, and 20)

Appellant asserts the anticipation rejection should be reversed because the Examiner errs in finding *Reverdv* discloses “a firewall structure,” as recited in claim 1. Appeal Br. 4–6. For the following reasons, we agree.

Reverdv discloses several cooling tower modules which are placed side by side to form a modular cooling tower assembly. *Reverdv*, Fig. 1 (illustrating one cooling tower module 10), Fig. 2 (illustrating six cooling

tower modules 10 arranged in a two by three assembly), 2:41–42, 3:3–6.

Reverdv's Figure 5 is reproduced here:

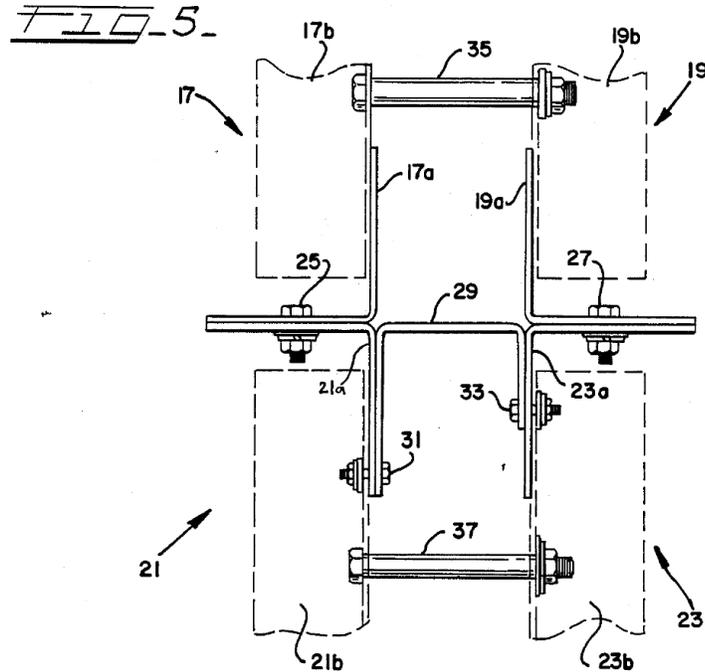


Figure 5 illustrates attaching means for joining adjacent cooling tower modules 17, 19, 21, and 23.³ *Id.* at 3:12–17. Modules 17 and 21 are spaced apart from modules 19 and 23 by spacer channel member 29, attached via bolts 31 and 33. *Id.* at 3:24–28. Spacer 29 thus “provide[s] a spacing between two modules that permits minimum [required] access for hands and tools during mechanical attachment.” *Id.* at 3:28–31. “Fill sheets (not shown) may be inserted in the spacing created by spacing channel member 29 and the ends may be blocked by sealing panel strips (not shown).” *Id.* at 3:35–38.

³ Only portions of these modules are shown in Figure 5. Reverdv, 2:27–29. For example, module 17 is represented only by its corner post member 17a and upper horizontal member 17b. *Id.* at 2:41–46 (describing frame of module 10 shown in Fig. 1), 3:17–18 (describing portions of module 17 shown in Fig. 5).

The Examiner finds Reverdv’s spacer 29 is “a firewall structure,” as recited in claim 1. Final Act. 3. The Examiner reasons spacer 29 “will create a gap between cell modules, wherein said space can be filled and sealed, thereby creating an impediment to fire.” *Id.* Further, “specific features of a firewall . . . are not recited in” claim 1, and “limitations from the specification are not read into the claims.” *Id.* at 9 (citation omitted).

Appellant responds that “Reverdv makes absolute[ly] no mention of fire prevention,” and spacer 29 is not a firewall. Appeal Br. 4. Appellant asserts spacer 29 “simply provides spacing between modules only and is not a wall, let alone a firewall that helps prevent the spread of fire.” *Id.* Indeed, according to Appellant, the spacing between modules 17, 19, 21, and 23 provided by spacer 29 “would be counterproductive to the prevention of fire as it would allow for the spread of fire.” *Id.* at 4–5. Appellant contends a person of ordinary skill in the art would be familiar with various fire prevention and resistance standards, and there is no indication that Reverdv’s spacer 29 meets any such standard. *Id.* at 5.

The Examiner answers that “[A]ppellant’s own further definition of ‘a firewall structure’ in” dependent claims 6 and 7 “amounts to a space being created between two panels.” Ans. 9. The Examiner also concludes claim 1 “recites a ‘firewall structure’ and not just ‘a firewall’, wherein a ‘firewall structure’ is a broader definition that can encompass connective features not associated with fire prevention.” *Id.* at 9–10. Further according to the Examiner, Appellant’s discussion of various fire resistance standards unpersuasively attempts to distinguish claim 1 from Reverdv based on unclaimed limitations, because claim 1 does not recite any of the standards discussed by Appellant. *Id.* at 10–11.

Upon review of the foregoing, we determine the Examiner's rejection relies on an unreasonably broad claim construction of the term "firewall structure." *See In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (holding that, during examination of a patent application, pending claims are given their broadest reasonable construction consistent with the Specification); *see also Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015) (holding the broadest reasonable construction "must be consistent with the one that those skilled in the art would reach") (quoting *In re Cortright*, 165 F.3d 1353, 1358 (Fed. Cir. 1999)).

The Examiner determines *any* structure that provides *any* space between two objects is a firewall, by virtue of the space provided between the objects. We recognize that the distance between two objects is one factor that affects how likely it is that a fire may spread from one object to the other object, with a longer distance decreasing the likelihood. However, a person of ordinary skill in the art would understand that there is a minimum distance threshold, below which varying the distance between the two objects will not materially impact the likelihood of fire spreading from one object to the other, because the two objects are simply too close to one another for distance alone to stop the spread of fire. The Examiner's claim construction does not take this into account, and is therefore unreasonably broad.

Dependent claims 6 and 7 do not support the Examiner's position, because they do not relate to what constitutes a "firewall." Instead, they recite additional limitations that the firewall structure of claim 1 must satisfy. Claim 1 pertinently recites only "a firewall structure." Claims

App. 2. Claim 6 narrows claim 1 by specifying a positional relationship between the firewall structure and other structures of the cooling tower: the firewall structure must separate two cells of the cooling tower. *Id.* at 2–3. Claim 7 narrows claim 1 by specifying a particular structure for the firewall structure: it comprises two panels separated by a separator, as exemplarily shown in Appellant’s Figure 12. *Id.* at 3; Spec., Fig. 12, ¶ 71 (indicating this structure is “configured to withstand dynamic loads when the fill module is transported without the need for extraordinary means of dynamic isolation”). Neither claim 6 nor claim 7 specifies how the firewall structure helps to prevent the spread of fire.

Finally, in reviewing Figures 1, 2, and 5 of Reverdv together as a whole, we cannot find by a preponderance of the evidence that the space maintained by spacer 29 between adjacent cooling tower modules (for example, modules 21 and 23) is significant from a fire spreading standpoint. In other words, in our view, it is more likely that this space is less than the minimum distance threshold discussed above, below which varying the distance between the modules will not materially impact the likelihood of fire spreading from one module to the other. Modules 21 and 23 appear, on the present record, to be too close to one another for distance alone to stop the spread of fire from one to the other.

For the foregoing reasons, we do not sustain the rejection of claim 1, and its dependent claims 2, 3, 6–8, 10, 16–18, and 20, as anticipated by Reverdv.

B. Obviousness over Reverdv and Bland (Claims 5 and 11–15)

Claim 5

Claim 5 depends from claim 1, to add “wherein the firewall structure comprises a fiber-reinforced material.” Claims App. 2.

In the Final Office Action, the Examiner finds “Reverdv teaches a firewall . . . but fails to specifically teach the firewall structure comprises a fiber-reinforced material.” Final Act. 6. The Examiner cites Bland as disclosing firewall structure 900a that comprises a fiber-reinforced material. *Id.* (citing Bland, Fig. 9A, ¶ 115). The Examiner determines “it would have been obvious . . . to form the firewall structure of Reverdv in the same manner as taught by Bland in order to increase the fire prevention of the firewall.” *Id.* at 7.

Appellant responds that combining Bland’s firewall with Reverdv’s spacer 29 would render Reverdv’s tower inoperable. Appeal Br. 6. Appellant’s view is that the function of spacer 29 is to “provide spacing between adjacent modules [17, 19, 21, and 23] such that the modules may be accessed,” and “the addition of” Bland’s firewall 900a to Reverdv’s spacer 29 would prevent that function from being performed. *Id.* Appellant also asserts it is not clear how the combination would work. *Id.*

In the Answer, the Examiner finds “Reverdv anticipated inserting materials into the spaces between adjacent cell towers, wherein one of ordinary skill in the art would recognize that any number of suitable materials could be inserted into the space.” Ans. 12 (citing Reverdv, 3:35–38); Reverdv, 3:35–38 (“Fill sheets (not shown) may be inserted in the spacing created by spacing channel member 29 and the ends may be blocked by sealing panel strips (not shown).”). The Examiner also finds Bland

“teaches a firewall structure in a space between two panels,” and determines “one of ordinary skill in the art would be capable of *inserting the firewall of Bland into the open space of Reverdv*,” which would not render Reverdv’s cooling tower inoperable. Ans. 12 (emphasis added). Further according to the Examiner, inserting Bland’s firewall into the space provided by Reverdv’s spacer 29 would beneficially make Reverdv’s cooling tower more fire resistant. *Id.* at 12–13.

Appellant did not file a Petition for the Answer to be designated to contain a new ground of rejection (37 C.F.R. § 41.40 (2017)), or file a Reply Brief (*id.* § 41.41) to address the Answer.

Upon review of the foregoing, we sustain the Examiner’s rejection. Appellant does not dispute that Reverdv’s cooling tower module satisfies every limitation of claim 5, except for a firewall structure. Appellant also does not dispute that Bland discloses firewall structure 900a placed between two cooling tower cells to reduce the potential of fire spreading from one cell to the other, or that firewall structure 900a comprises fiber-reinforced material. *See, e.g.*, Bland ¶¶ 113–115, Fig. 9A.

We agree with the Examiner’s determination, particularly expressed in the Answer, that it would have been obvious in light of Bland to add a firewall structure within the space formed by Reverdv’s spacer 29 between cooling tower modules. Bland discloses the functional benefit provided by such a firewall: “In the event of a fire in one cell [or module], the firewall advantageously prevents (or reduces the potential of) the fire from spreading to an adjacent cell [or module],” which can desirably eliminate the need for a fire sprinkler system. Bland ¶ 113. It would have been obvious to add a firewall to Reverdv to obtain this benefit.

Further, this modification would not render Reverdv's cooling tower inoperable, for at least two reasons. First, according to Reverdv, the space afforded by spacer 29 is needed only "during mechanical attachment" of modules 17, 19, 21, and 23. Reverdv, 3:12–38, Fig. 5. Adding a firewall within the space after the mechanical attachment is completed would not frustrate that purpose. Second, Reverdv contemplates that "[f]ill sheets" may be inserted in the space afforded by Reverdv's spacer 29, with the ends blocked by sealing panel strips, after the mechanical attachment is completed. *Id.* at 3:35–38. We discern no reason, and Appellant provides none, why the space could not be filled with a firewall structure, to achieve the fire retardation function disclosed by Bland to be beneficial.

We note, further, that *adding* Bland's firewall structure to Reverdv's cooling tower, as proposed in the Answer for the obviousness of claim 5, cures Reverdv's deficiency of not disclosing a firewall structure in relation to the anticipation rejection of parent claim 1 based on Reverdv.

For the foregoing reasons, we sustain the rejection of claim 5 as having been obvious over Reverdv and Bland.

Claims 11–15

The Examiner's additional consideration of dependent claims 11–15, and of Bland, does not cure the firewall structure deficiency of Reverdv in connection with independent claim 1 noted above. *See* Final Act. 7–9. Thus, we do not sustain the rejection of claims 11–15 as having been obvious over Reverdv and Bland.

C. New Ground of Rejection — 35 U.S.C. § 103 — Claim 1

We enter a new ground of rejection of claim 1 as being unpatentable, under 35 U.S.C. § 103, over Reverdv and Bland.

We find Reverdv discloses the heat exchange module of claim 1, except that Reverdv’s module does not comprise a firewall structure, as established by the Examiner’s undisputed findings. *See* Final Act. 3; Appeal Br. 4–5; *supra* Section A. We find Bland discloses firewall structure 900a disposed between adjacent cells or modules of a cooling tower, to reduce the potential of fire spreading from one module to the other module. *See, e.g.*, Final Act. 6–7; Appeal Br. 6 (“Bland sets forth a firewall”); Bland ¶¶ 113–115, Fig. 9A.

We determine it would have been obvious in light of Bland to add a firewall structure within the space formed by Reverdv’s spacer 29 between cooling tower modules. Bland discloses the functional benefit provided by such a firewall: “In the event of a fire in one cell [or module], the firewall advantageously prevents (or reduces the potential of) the fire from spreading to an adjacent cell [or module],” which can desirably eliminate the need for a fire sprinkler system. Bland ¶ 113. It would have been obvious to add a firewall to Reverdv to obtain this benefit. Also, as discussed above in Section B, a person of ordinary skill in the art would have had a reasonable expectation of success in achieving this modification, in a predictable manner. *See, e.g.*, Reverdv, 3:12–38, Fig. 5 (disclosing that the space afforded by spacer 29 may be used to permit access for hands and tools during mechanical attachment of modules 17, 19, 21, and 23, and then be filled with fill sheets and blocked by sealing panel strips).

Thus, we enter a new ground of rejection of claim 1 as being unpatentable, under 35 U.S.C. § 103, over Reverdv and Bland. With respect to the other claims, although we decline to reject every claim pursuant to our discretionary authority under 37 C.F.R. § 41.50(b), we emphasize that our decision does not mean the remaining claims are patentable. Rather, we merely leave the patentability determination of these claims to the Examiner. *See* MPEP § 1213.02.

CONCLUSION

In summary, we reverse the Examiner’s anticipation rejection of claims 1–3, 6–8, 10, 16–18, 20, we affirm the Examiner’s obviousness rejection as to claim 5, we reverse the Examiner’s obviousness rejection as to claims 11–15, and we enter a new ground of rejection of claim 1, as summarized in this table:

Claim(s) Rejected	35 U.S.C. §	Reference(s)	Affirmed	Reversed	New Ground
1–3, 6–8, 10, 16–18, 20	102(a)(1)	Reverdv		1–3, 6–8, 10, 16–18, 20	
5, 11–15	103	Reverdv, Bland	5	11–15	1
Overall Outcome			5	1–3, 6–8, 10–18, 20	1

This decision contains a NEW GROUND OF REJECTION pursuant to 37 C.F.R. § 41.50(b). Section 41.50(b) provides “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.” Section 41.50(b) also provides that Appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the prosecution will be remanded to the examiner. . . .

(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. . . .

37 C.F.R. § 41.50(b)(1)–(2). Further guidance on responding to a new ground of rejection can be found in the Manual of Patent Examining Procedure § 1214.01.

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; 37 C.F.R. § 41.50(b)