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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KEVIN B. LEIGH and GEORGE D. MEGASON

Appeal 2018-008824
Application 14/898,686
Technology Center 2800

Before KAREN M. HASTINGS, JEFFREY B. ROBERTSON, and
JAMES C. HOUSEL, *Administrative Patent Judges*.

HOUSEL, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to finally reject claims 1–13 and 16–22. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.²

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Hewlett Packard Enterprise Development LP. Appeal Br. 1.

² Our Decision refers to the Specification (“Spec.”) filed Dec. 15, 2015, the Examiner's Final Office Action (“Final Act.”) dated Oct. 30, 2017, Appellant's Appeal Brief (“Appeal Br.”) filed Mar. 30, 2018, the

STATEMENT OF THE CASE

The invention relates to a base layer architecture (“BLA”) infrastructure device comprising a power base layer (“PBL”) to supply power to one or more cartridges (electronic device components), a cold thermal base layer (“cold TBL”) and a hot thermal base layer (“hot TBL”) to cool and remove heat from the cartridge(s), respectively, and an optical base layer (“OBL”) and a radio frequency base layer (“RBL”) to transmit and receive optical and radio frequency signals to and from the cartridge(s), wherein each base layer comprises a number of cartridge interfaces that couple the base layers to the cartridges and an interface that couples the base layer to a rack, either independently or collectively with other base layers. Spec. ¶ 13.

Appellant’s Figure 1, reproduced below, shows each of these base layers of the BLA infrastructure device.

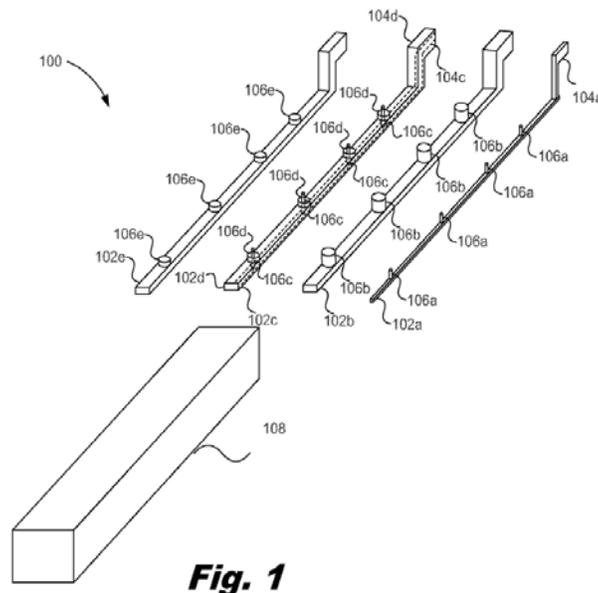


Fig. 1

Examiner’s Answer (“Ans.”) dated July 11, 2018, and Appellant’s Reply Brief (“Reply Br.”) filed Sept. 11, 2018.

As depicted in Figure 1, BLA infrastructure device 100 includes PBL 102a, OBL 102b, RBL 102c which may be embedded within cold TBL 102d, and hot TBL 102e, wherein each of the base layers includes cartridge interfaces 106a–e for coupling with one or more cartridges and rack interfaces 104a–e for coupling with a rack. Spec. ¶¶ 21, 22, and 24. BLA infrastructure device 100 may include a housing 108 that houses the base layers and may be electrically, thermally, and/or radio frequency shielding material. *Id.* ¶ 34.

Independent claims 1, 9, and 22, reproduced below from the Claims Appendix to the Appeal Brief, are illustrative of the subject matter on appeal.

1. A base layer architecture (BLA) infrastructure device comprising:
 - a power base layer (PBL) to supply power to a cartridge;
 - a cold thermal base layer (cold TBL) to cool the cartridge;
 - a hot thermal base layer (hot TBL) to remove heat from the cartridge;
 - an optical base layer (OBL) to transmit an optical signal to the cartridge; and
 - a radio frequency base layer (RBL) to transmit a radio frequency signal to the cartridge;in which the base layers each comprise:
 - a rack interface to couple the base layers to a rack; and
 - a number of cartridge interfaces to couple the base layers to the cartridge.

9. A base layer architecture (BLA) infrastructure system, comprising:

base layer architecture (BLA) infrastructure device comprising a number of base layers to receive a number of cartridges;

a rack, in which the base layers are removably coupled to the rack; and

a system management device to manage the number of base layers.

22. A cartridge for a base layer architecture infrastructure system, the cartridge comprising:

a processor;

a memory;

a power base layer (PBL) interface to removably connect to a PBL to receive power for the cartridge;

a cold thermal base layer (cold TBL) interface to removably connect to a cold TBL to cool the cartridge;

a hot thermal base layer (hot TBL) interface to removably connect to a hot TBL to remove heat from the cartridge;

and at least one of:

an optical base layer (OBL) interface to removably connect to an OBL to receive an optical signal; and

a radio frequency base layer (RBL) interface to removably connect to and RBL to receive a radio frequency signal.

REFERENCES

The Examiner relies on the following prior art references:

Lyon et al. (“Lyon”)	US 2013/0025818 A1	Jan. 31, 2013
Petruzzo	US 2012/0075795 A1	Mar. 29, 2012

REJECTIONS

On appeal, the Examiner maintains the following rejections:

1. Claims 9–13 under 35 U.S.C. § 102(a)(1) as anticipated by Lyon;
2. Claims 1–8 and 16–22 under 35 U.S.C. § 103 as unpatentable over Lyon in view of Petruzzo.

ANALYSIS

Rejection 1

After review of the opposing positions articulated by Appellant and the Examiner, the applied prior art, and Appellant's claims and Specification disclosures, we determine that Appellant's arguments are insufficient to identify reversible error in the Examiner's anticipation rejection. *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011). Accordingly, we affirm the stated anticipation rejection for substantially the fact findings and the reasons set forth by the Examiner in the Examiner's Answer and the Final Office Action. We offer the following for emphasis only.

The Examiner rejects claims 9–13 under 35 U.S.C. § 102(a)(1) as anticipated by Lyon. Final Act. 2–4. Appellant argues these claims as a group. In accordance with 37 C.F.R. § 41.37(c)(1)(iv), claims 10–13 stand or fall with claim 9, which we select as representative in our opinion below.

The Examiner finds that Lyon teaches a BLA infrastructure system having a number of base layers to receive a number of cartridges or servers, a rack in which the base layers are removably coupled, and a system management device to manage the number of base layers. Final Act. 2–3. The Examiner finds that Lyon teaches a rack 101, and that Lyon's cooling manifold 200 and interconnection mechanism (which is not shown in the drawings) are base layers. *Id.* The Examiner determines that because these components are part of an assembly of components, they are removably

coupled. *Id.* Also, the Examiner finds Lyon's controller 330 is a system management device to manage the number of base layers. *Id.* at 3.

Appellant argues that Lyon fails to disclose base layers to receive a number of cartridges, wherein the base layers are removably coupled to a rack. Appeal Br. 5. Appellant asserts that the Examiner characterizes Lyon's chassis or rack 101 as both a rack and a base layer. *Id.* at 6. As such, Appellant contends that the Examiner fails to explain how rack 101 can be removably coupled to itself. *Id.* Appellant also contends that Lyon's cooling module 200, by itself, cannot be properly characterized as a number of base layers that receive a number of cartridges because cooling module 200 is merely connected to servers 112 by hoses. *Id.*

We do not find Appellant's arguments persuasive of reversible error because they misapprehend the Examiner's findings. The Examiner did not find that rack 101 is a base layer or part of a base layer. Instead, as the Examiner responds (Ans. 4), the Examiner interprets rack 101 as the rack of claim 9 and finds that there are two base layers, one of which is not shown in the drawings, but is described as an interconnection mechanism for supplying electrical power and communication, and the other of which is the cooling manifold 200 for cooling the cartridges or servers 112. Thus, the Examiner found that the rack 101 is a separate structure from either of these two base layers.

We note that claim 9 requires only a single base layer because "a number of base layers" broadly covers one or more base layers. Thus, either of the identified base layers in Lyon would meet this claim recitation. We further note that Appellant fails to address the interconnection mechanism as a base layer. Appellant merely challenges the Examiner's finding that

Lyon's cooling manifold 200 is a base layer that receives a cartridge because the manifold is only connected to the servers via hoses. We disagree. While Appellant discloses that the base layers and cartridges include interfaces for connecting together, these interfaces are not described in such a way as to limit how the term "receiving" is used in claim 9. Accordingly, the hoses 210, 220 of cooling manifold 200 are interfaces that receive each of the servers 112.

In the Reply Brief, Appellant presents a new argument not raised in the Appeal Brief, contending that the Examiner improperly interpreted the terms, "base layer." Reply Br. 2–4. Appellant also argues for the first time that the interconnection mechanism cannot be properly characterized as a base layer, that the cooling manifold and its hoses does not serve as a foundation or support for any overlying cartridge or server, and that Lyon's base layers are not in the rack. *Id.* 4–7. Under regulations governing appeals to the Board, any new argument not timely presented in the Appeal Brief will not be considered when filed in a Reply Brief, absent a showing of good cause explaining why the argument could not have been presented in the Appeal Brief. *See* 37 C.F.R. § 41.41(b)(2); *In re Hyatt*, 211 F.3d 1367, 1373 (Fed. Cir. 2000) (noting that an argument not first raised in the brief to the Board is waived on appeal); *Ex parte Nakashima*, 93 USPQ2d 1834 (BPAI 2010) (informative) (explaining that arguments and evidence not timely presented in the principal Brief will not be considered when filed in a Reply Brief, absent a showing of good cause explaining why the argument could not have been presented in the principal brief); *Ex parte Borden*, 93 USPQ2d 1473, 1477 (BPAI 2010) (informative) ("Properly interpreted, the Rules do not require the Board to take up a belated argument that has not

been addressed by the Examiner, absent a showing of good cause.”). Appellant has provided this record with no such showing and, therefore, this argument has been waived. In addition, we note that these arguments are based on limitations not appearing in the claims such as base layers serving as supports for overlying cartridges. *See In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (rejecting appellant’s nonobviousness argument as based on limitation not recited in claim); *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (“Many of appellant’s arguments fail from the outset because, as the solicitor has pointed out, they are not based on limitations appearing in the claims.”).

Accordingly, we sustain the Examiner’s anticipation rejection of claims 9–13.

Rejection 2

After review of the Examiner’s and Appellant’s opposing positions, the applied prior art, and Appellant’s claims and Specification disclosures, we determine that Appellant has identified reversible error in the Examiner’s obviousness rejection as to claims 1–8, 16–18, and 21, but are insufficient to identify reversible error in the obviousness rejection as to claims 19, 20, and 22. *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011). Accordingly, we affirm the stated obviousness rejection as to claims 19, 20, and 22 only for substantially the fact findings and the reasons set forth by the Examiner in the Examiner’s Answer and the Final Office Action, but otherwise reverse this rejection as to claims 1–8, 16–18, and 21. We offer the following for emphasis only.

The Examiner rejects claims 1–8 and 16–22 under 35 U.S.C. § 103 as unpatentable over Lyon. Final Act. 5–15. Appellant argues independent

claim 22 and dependent claims 16, 17, and 18 separately, but otherwise argues the remaining claims as a group.

In accordance with 37 C.F.R. § 41.37(c)(1)(iv), claims 19 and 20 stand or fall with claim 9 from which they depend. Therefore, we sustain the Examiner's rejection of claims 19 and 20 for the reasons discussed above with respect to Rejection 1.

Claims 1–8, 16–18, and 21

The Examiner finds that Lyon discloses a BLA infrastructure device having a PBL to supply power, a cold TBL to cool cartridges, a hot TBL to remove heat from the cartridges, an OBL to transmit optical signals to the cartridge, and an RBL to transmit a radio frequency signal to the cartridges, wherein each of the base layers comprise a rack interface to couple the base layers to a rack and a number of cartridge interfaces to couple the base layers to the cartridge. Final Act. 5–6. The Examiner finds that Lyon teaches the rack provides electrical power and optical communication connections essential to operate servers, but fails to show “well known essential and specific details” of these connections. *Id.* at 6. However, the Examiner finds that Petruzzo teaches details of a PBL 510 and an OBL 520, 540. Therefore, the Examiner concludes that it would have been obvious to provide the known details of providing power and communication signals to each server via a PBL and an OBL as taught by Petruzzo in the BLA architecture device of Lyon to increase modularity and flexibility. *Id.*

Appellant argues, *inter alia*, that the Examiner has failed to present any evidence that Lyon's radio frequency sensors have a rack interface to couple such sensor to the rack and cartridge interfaces to couple the cartridges to the sensors. Appeal Br. 9–10. The Examiner responds that

each server can use the optical and radio frequency network, but that the connection details for each server are not shown. Ans. 10–11. The Examiner then indicates that Petruzzo is relied on for such details. *Id.* However, the Examiner fails to direct our attention to any disclosure in Petruzzo of any connection details for an RBL for transmitting and receiving radio frequency signals to and from servers. Thus, the combination of Lyon and Petruzzo fails to teach or suggest any connection details for an RBL including a rack interface to couple Lyon’s radio frequency sensors to the rack and cartridge interfaces to couple the servers to the sensors. Absent such a teaching, the Examiner’s conclusion lacks sufficient rational underpinning. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”), *quoted with approval in KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). Therefore, we will not sustain the Examiner’s obviousness rejection of claim 1, and claims 2–8, 16–18, and 21 which depend therefrom.

Claim 22

After review of the opposing positions articulated by Appellant and the Examiner, and the appeal record before us, we determine that Appellant’s arguments are insufficient to identify reversible error in the Examiner’s obviousness rejection of claim 22. *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011). Accordingly, we affirm the stated obviousness rejection for substantially the fact findings and the reasons set forth by the Examiner in the Examiner’s Answer and the Final Office Action. We offer the following for emphasis only.

The Examiner finds that Lyon teaches a cartridge 112 for a BLA infrastructure system comprising processor 1110, memory 1120, a cold TBL interface (Figs. 2, 6) to removably connect to a cold TBL 210 to cool the cartridge, a hot TBL interface (Figs. 2, 6) to removably connect to a hot TBL to remove heat from the cartridge, and at least one of an RBL interface to removably connect to an RBL to receive a radio frequency signal, an OBL interface to removably connect to an OBL to receive an optical signal, and a PBL interface to removably connect to a PBL to receive power for the cartridge. Final Act. 13–14. The Examiner further finds that Lyon teaches rack 101 for providing electrical power and optical communication connections essential to operate servers, but does not show well known essential and specific details. *Id.* at 14. However, the Examiner finds that Petruzzo teaches details of a PBL 510 and an OBL 520, 540. *Id.* Therefore, the Examiner concludes that it would have been obvious to provide the known details of providing power and communication signals to each server via a PBL and an OBL as taught by Petruzzo in the BLA architecture device of Lyon to increase modularity and flexibility. *Id.* at 14–15.

Appellant argues that neither Lyon nor Petruzzo discloses a cartridge having each of the noted interfaces that allows the cards to removably connect to each of a PBL, a cold TBL, a hot TBL, and at least one of an OBL and an RBL. Appeal Br. 16. Appellant contends that claim 22 does not simply recite that the cartridge has connections, but that “the cartridge has multiple interfaces that allow the cartridge to removably connect to each of multiple base layers.” *Id.* at 16–17. Appellant asserts that the Examiner failed to present evidence that either reference discloses a cartridge with interfaces for connection to each of the recited base layers. *Id.* at 17.

Appellant's arguments with regard to claim 22 are not persuasive of reversible error. As Appellant states, claim 22 requires a cartridge having interfaces that removably connect to each of a PBL, a cold TBL, a hot TBL, and at least one of an OBL and an RBL. As discussed above, and as the Examiner finds, Lyon teaches cold and hot TBL's that removably connect to each server or cartridge 112. Thus, each cartridge must have an interface which removably connects with the TBL interfaces. While Lyon neither depicts the details of the PBL nor, therefore, the details of an interface with the servers or cartridges, Petruzzo teaches a PBL and an OBL that removably connect to each server and thus each server or cartridge includes an interface to removably connect to the PBL and the OBL. Appellant does not challenge the obviousness of adding such interfaces to Lyon's cartridges. We are, therefore, satisfied that the record sufficiently supports the Examiner's prima facie case of obviousness of the claimed cartridge and that Appellant fails to identify reversible error in either the Examiner's findings or reasoning in this regard.

As before, Appellant raises new arguments in the Reply Brief contending that the Examiner improperly interpreted the terms, "base layer," that computing environment of Figure 10 would most likely constitute an individual server and not a base layer that connects to a server, and that the cooling manifold and its hoses cannot properly be characterized as a base or a layer. Reply Br. 13–15. Absent a showing of good cause explaining why the argument could not have been presented in the Appeal Brief. *See* 37 C.F.R. § 41.41(b)(2). Appellant has provided this record with no such showing and, therefore, these arguments have been waived. Again, we note that these arguments are based on limitations not appearing in the claims.

Accordingly, we sustain the Examiner's obviousness rejection of claim 22.

DECISION

Upon consideration of the record, and for the reasons given above and in the Final Office Action and the Examiner's Answer, the decision of the Examiner rejecting claims 9–13 under 35 U.S.C. § 102(a)(1) as anticipated by Lyon and rejecting claims 19, 20, and 22 under 35 U.S.C. § 103 as unpatentable over Lyon in view of Petruzzo is *affirmed*.

However, for the reasons given above and in the Appeal and Reply Briefs, the decision of the Examiner rejecting claims 1–8, 16–18, and 21 under 35 U.S.C. § 103 as unpatentable over Lyon in view of Petruzzo is *reversed*.

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)(1).

CONCLUSION

In summary:

Claims Rejected	Basis	Affirmed	Reversed
9–13	§ 102(a)(1); Lyon	9–13	
1–8, 16–22	§ 103; Lyon, Petruzzo	19, 20, 22	1–8, 16–18, 21
Overall Outcome		9–13, 19, 20, 22	1–8, 16–18, 21

AFFIRMED-IN-PART