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CORNING, NY 14831

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BEHROOZ PARSAY, SHASHIKANT TIWARI, HITHESH NAMA, YASHODHAN DANDEKAR, BRIAN PATRICK DUNN, and JASPREET SINGH

Appeal 2019-002185
Application 15/059,235
Technology Center 2400

Before ALLEN R. MacDONALD, MICHAEL J. ENGLE, and SCOTT RAEVSKY, *Administrative Patent Judges*.

ENGLE, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant[1] appeals under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1–30, which are all of the claims pending in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

TECHNOLOGY

The application relates to a gateway coordinating multiple small cell radio access networks. Spec. Title.

ILLUSTRATIVE CLAIM

Claims 1 and 30 are illustrative and reproduced below with the limitations at issue emphasized:

> 1. A method of coordinating a plurality of radio access networks (RANs), comprising:
>
> aggregating, with a gateway, communications interfaces between *a plurality of RANs* and a packet core network through the gateway, *a plurality of radio nodes (RNs) in each of the plurality of RANs* communicatively coupled to the gateway and to user equipment (UE) devices associated with the plurality of RNs in each of the plurality of RANs;
>
> controlling and coordinating, with the gateway, mobility of the UE devices within and among the plurality of RANs; and
>
> acting, with the gateway, as a virtual enhanced NodeB (eNB) to the packet core network to hide the aggregated communications interfaces from the packet core network.

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[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42(a). The Appeal Brief identifies the real party in interest as "SpiderCloud Wireless, Inc. . . . which is a wholly owned subsidiary of Corning Incorporated." Appeal Br. 2. A request to correct or update the name of the applicant submitted on February 3, 2020, subsequently updated the applicant to Corning Optical Communications LLC.

> 30. A gateway through which a plurality of radio access networks (RANs) communicate with a packet core network, comprising:
>
> a plurality of access controller modules to which at least one RAN is assigned, each of the plurality of access controller modules being configured to control the at least one RAN assigned thereto;
>
> a core network aggregator module configured as a single interface for all communication between the plurality of access controller modules and the packet core network;
>
> a mobility anchor module at which all data plane traffic between user equipment (UEs) attached to one of the plurality of RANs and the packet core network terminate; and
>
> *a cluster manager module for assigning RNs to the plurality of access controller modules and transferring RN assignments from one access controller module to a different access controller module under specified circumstances*.

REJECTIONS

Claims 1–11, 16–21, 24–28, and 30 stand rejected under 35 U.S.C. § 103 as obvious over Srinivasan[2] (US 2013/0294403 A1; published Nov. 7, 2013) in view of Chen (US 2016/0112945 A1; Apr. 21, 2016). Final Act. 9.

Claims 1–29 stand rejected on the ground of non-statutory obviousness-type double patenting over claim 1 of Srinivasan (US 8,982,841 B2; Mar. 17, 2015). Final Act. 6.

The Examiner withdrew the rejections under 35 U.S.C. § 112(a) and (b). *See* Ans. 4; Advisory Act. (May 30, 2018).

[2] For the obviousness rejection, the Examiner relies on the patent publication of Srinivasan, but for the double patenting rejection, the Examiner relies on the issued patent. We therefore cite to the patent publication of Srinivasan in the discussion of the obviousness rejection.

ISSUES

1. Did the Examiner err in finding the combination of Srinivasan and Chen teaches or suggests "aggregating . . . communications interfaces between a plurality of RANs and a packet core network" with "a plurality of radio nodes (RNs) in each of the plurality of RANs," as recited in claim 1?

2. Did the Examiner err in finding the combination of Srinivasan and Chen teaches or suggests "a cluster manager module for assigning RNs to the plurality of access controller modules and transferring RN assignments from one access controller module to a different access controller module under specified circumstances," as recited in claim 30?

ANALYSIS

Obviousness

Claims 1–11, 16–21, and 24–28

The preamble of claim 1 recites a "method of coordinating a plurality of *radio access networks (RANs)*." The body of claim 1 then recites "aggregating . . . communications interfaces *between a plurality of RANs* and a packet core network." Claim 1 further recites "*a plurality of radio nodes (RNs) in each of the plurality of RANs*."

Appellant argues that the prior art discloses aggregating multiple radio access *nodes* (RNs), not multiple radio access *networks* (RANs). Appeal Br. 11–12.

We agree with Appellant. Claim 1 of the commonly-owned Srinivasan is very similar to claim 1 of the present application except Srinivasan recites "aggregating communications interfaces between a plurality of radio *nodes* and a packet core network." Srinivasan does disclose that within a footprint of a macrocell, "there may be multiple ERAN

deployments in the area, each with a large number of RNs." Srinivasan ¶ 65. However, the Examiner fails to explain sufficiently how Srinivasan teaches or suggests aggregating those multiple ERAN deployments, rather than, for example, merely aggregating multiple nodes within a single radio access network. *See* Ans. 4–5. The Examiner's reliance on Chen suffers from the same deficiency because Chen discloses "aggregating signalings from different radio access network *nodes*" yet the Examiner never sufficiently explains why it would have been obvious to aggregate nodes from multiple radio access *networks*. *See* Chen ¶¶ 14 (emphasis added), 116; Ans. 6–7.

Accordingly, we reverse the Examiner's rejection under § 103 of claim 1, and its dependent claims 2–11, 16–21, and 24–28.

Claim 30

Independent claim 30 recites "at least one RAN" rather than the plurality of RANs required in claim 1. Instead, Appellant argues a different limitation reciting "a cluster manager module for assigning RNs to the plurality of access controller modules and transferring RN assignments from one access controller module to a different access controller module under specified circumstances."

The Final Office Action first cites paragraph 35 of Srinivasan for teaching or suggesting this entire limitation. Paragraph 35 of Srinivasan is reproduced below:

> On the management plane, it is assumed that the SNs are provisioned through a TR-69/TR-196 interface from an access control system (ACS) entity in an operator core network. This is analogous to the provisioning architecture for UMTS ERAN and consumer femtocells, and is consistent with deployment

> roadmaps laid out by operators. In one embodiment, the attributes of the virtual eNB (SN) are directly provisioned by the ACS, while the attributes of the pool of radio nodes sitting behind it are managed by the SN. For other management plane integration such as events, alarms and performance data, custom integration may be carried out with vendors that install and manage operations support systems (OSSs) in operator networks. Alternatively, and in accordance with another embodiment, SNs, which take on the role of local enterprise gateways, may themselves be aggregated through an LTE femto gateway as also shown in FIG. 3.

Srinivasan ¶ 35.

The Final Office Action goes on to state that "Srinivasan does not explicitly teach a cluster manager module." Final Act. 17. Instead, the Examiner finds that "Chen teaches a gateway man[a]ger to manage and coordinate one or more access network nodes." Final Act. 17 (citing Chen ¶ 14) (emphasis omitted).

Paragraph 14 of Chen discloses:

> the control plane gateway works as an aggregation and distribution node of control plane signaling, aggregating signalings from different radio access network nodes and sending them to the core network, or distributing signalings from the core network to different radio access network nodes; and managing and coordinating one or more radio access network nodes.

Chen ¶ 14.

Appellant argues that the Examiner has not sufficiently shown where the entirety of this limitation is taught or suggested by Chen:

> [W]hile paragraph 0014 of Chen does describe a "control plane gateway" that "works as an aggregation and distribution node of control plane signaling . . . and coordinating one or more radio access network nodes," there is no teaching that this "control plane gateway" "assign[s] RNs to the plurality of access

> controller modules and transfer[s] RN assignments from one access controller module to a different access controller module under specified circumstances" as recited in claim 30. Mere "coordinating" is not the same as the "assigning" recited in claim 30.

Appeal Br. 13.

We are not persuaded by Appellant's argument. The Examiner relies on Chen only for teaching a "cluster manager module," but relies on Srinivasan for disclosing the rest of the limitation, including the disputed "assigning." Final Act. 17. Thus, Appellant's argument about Chen alone does not address the entirety of the Examiner's rejection. "Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references." *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

Accordingly, we sustain the Examiner's rejection under § 103 of claim 30.

Double Patenting

Appellant does not substantively argue the double patenting rejection. Instead, "Appellant has deferred argument" and "Appellant commits . . . to the preparation and filing of a terminal disclaimer in the event that the claims are found otherwise allowable." Appeal Br. 8. Given Appellant's waiver of argument and commitment to filing a terminal disclaimer, we summarily affirm the Examiner's rejection of claims 1–29 for double patenting.

DECISION SUMMARY

The following table summarizes the outcome of each rejection:

Claims Rejected	35 U.S.C. §	References	Affirmed	Reversed
1–11, 16–21, 24–28, 30	103	Srinivasan, Chen	30	1–11, 16–21, 24–28
1–29		Obviousness-type double patenting	1–29	
Overall			1–30	

TIME TO RESPOND

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. § 1.36(a)(1)(iv).

AFFIRMED