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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KELLY MICHAEL ORTH

Appeal 2018-005907
Application 12/717,638
Technology Center 2400

Before JUSTIN BUSCH, LINZY T. McCARTNEY, and
JASON J. CHUNG, *Administrative Patent Judges*.

BUSCH, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 49–67, which constitute all the claims pending in this application. We have jurisdiction over the pending claims under 35 U.S.C. § 6(b).

We REVERSE.

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 Rosemount Inc. Br. 2.

CLAIMED SUBJECT MATTER

Appellant's disclosure generally relates to bridging "a barrier to wireless communication between wireless field device networks using at least a pair of locally-powered wireless devices connected by a wired link spanning the barrier." Spec. ¶ 11, Abstract. Embodiments of the claimed invention relate to an apparatus including two wireless devices in wireless communication with two respective wireless field device mesh networks and a wired link that directly connects one device's router to the other device and spans a wireless communication barrier between the two devices. *See* Spec. ¶ 24, Fig. 1. The router receives a message on its wireless network, determines a destination for the message and, based on the destination field device (i.e., whether the field device is associated with (1) the device that includes the router, (2) another device in the same network, or (3) a device in the other network), appropriately processes (i.e., unpacks and sends, forwards wirelessly within the network, formats and forwards to the second device via the wired link) the message. *E.g.*, Spec. ¶ 30. Claims 49 and 63 are the independent claims. Claim 49 is reproduced below:

49. An apparatus for bridging a barrier to wireless communication between a first wireless field device mesh network and a second wireless field device mesh network, the apparatus comprising:

a first wireless device in wireless communication with the first wireless field device mesh network, the first wireless device comprising:

- a first data router;
- a first field device;
- a first local power source;
- a first transceiver; and
- a first antenna;

a second wireless device in wireless communication with the second wireless field device mesh network, the second wireless device comprising:

a second transceiver; and
a second antenna; and

a wired electrical transmission link directly connecting the first data router to the second wireless device, wherein the wired electrical transmission link spans the barrier to wireless communication between the first wireless field device mesh network and the second wireless field device mesh network to functionally form a unified wireless field device mesh network;

wherein the first data router is configured to receive a message from the first wireless field device mesh network and determine a destination for the message as a function of whether the message is addressed to one of the first field device, another member of the first wireless field device mesh network, and a member of the second wireless field device mesh network;

wherein the first data router, as a function of the destination for the message, is configured to:

unpack the message for the first field device and send the unpacked message to the first field device when the first data router determines the destination for the message is the first field device;

wirelessly forward the message to a member of the first wireless field device mesh network when the first data router determines the destination for the message is another member of the first wireless field device mesh network; and

format the message for transmission and transmit the formatted message to the second wireless device over the wired electrical transmission link, the formatted message crossing the barrier to wireless communication via the wired electrical transmission link, when the first data router determines the destination for the message is the member of the second wireless field device mesh network; and

wherein the second wireless device is powered by the first local power source through the wired link, and the wired link is powered exclusively by the first local power source.

REJECTIONS

Claims 49–58 and 60–67 stand rejected under 35 U.S.C. § 103 as obvious in view of Fein (US 2010/0067505 A1; Mar. 18, 2010), Crawley (US 2008/0267212 A1; Oct. 30, 2008), Applicant Admitted Prior Art (“AAPA”), and Rich (US 2005/0030968 A1; Feb. 10, 2005). Final Act. 4–11.

Claim 59 stands rejected under 35 U.S.C. § 103 as obvious in view of Fein, Crawley, AAPA, Rich, and Hong (US 2005/0220063 A1; Oct. 6, 2005). Final Act. 14–16.

ANALYSIS

The Examiner finds a combination of Fein, Crawley, AAPA, and Rich teaches or suggests every limitation recited in independent claims 49 and 63. Final Act. 4–6. Of particular relevance to the dispositive issue with respect to this Appeal, the Examiner finds Fein’s access points 301-1 through 301-4 teach or suggest “a first data router,” Fein’s station 302 teaches or suggests “a second wireless device,” and Fein’s fiber connection between access points 303-1 and 303-2 teaches or suggests “a wired link directly connecting the first data router to . . . the second field device.” Final Act. 4 (citing Fein ¶¶ 247–248, Fig. 8).

Appellant notes the Examiner finds Fein’s station 302 teaches the recited “second wireless device” and Fein’s interconnected fibers 303-1 and 303-2 teach the recited “wired electrical transmission link directly connecting the first data router to the second wireless device.” Br. 15. Appellant argues it is unclear specifically which of Fein’s elements teach many of the recited limitations, but presumes the Examiner finds Fein’s access points 301-1 through 301-4 teach or suggest the recited “first wireless

device.” Br. 14. Appellant then notes Fein’s interconnected fibers 303-1 and 303-2 connect adjacent access points (303-1 to 303-2 and 303-2 to 303-3, respectively), but the fibers do not connect station 302, which the Examiner finds teaches the recited “second wireless device,” to the access points. Br. 15. Appellant argues the Examiner’s rejection is therefore deficient because the Examiner fails to demonstrate Fein teaches or suggests the recited “wired electrical transmission link directly connecting the first data router to the second wireless device.” Br. 15. We agree with Appellant.

Fein teaches a device that combines multiple access points’ antennas to form a distributed antenna and observes the other devices’ transmissions to detect transmission patterns and adapt its own transmissions to the detected patterns. Fein, Abstract. The cited portions of Fein describe aspects of deploying a distributed antenna. *See* Fein ¶¶ 247–250. Specifically, Fein describes the wireless communication system with a distributed antenna depicted in Figure 8. Fein ¶¶ 247–248, Fig. 8. Figure 8 illustrates four access points 303-1 through 303-4 and multiple stations, including station 302, in a “rectangular propagation scenario, for instance a square exhibition hall” having eight wall elements, including wall element 304. *See* Fein ¶ 247, Fig. 8.

Fein’s access point 301-2 is connected to each of access points 301-1 and 301-3 by fiber connections 303-1 and 303-2, respectively. Fein ¶ 248. These interconnected access points provide a distributed antenna that is a combination of the three access points’ antennas. Fein ¶ 248. Given certain dimensions of the room and characteristics of the wireless system, the distributed antenna may provide macro-diversity, which means signals transmitted from stations in the room likely will be received at each access point’s antenna element (antennas 305a–305c) “with uncorrelated

amplitudes and phases due to the large antenna distance and the rich scattering propagation environment.” Fein ¶ 248.

Notably, however, the cited portion of Fein teaches wired electrical transmission links connecting only access point 301-2 to access points 301-1 and 301-3. Fein ¶¶ 247–250, Fig. 8. Fein does not teach a wired link connecting station 302 (or any other station) with any other device. Fein ¶¶ 247–250, Fig. 8. Fein’s Figure 8 shows station 302, access points 301-1 through 301-4, and fiber connectors 303-1 and 303-2 in a room having a rectangular shape and is reproduced below:

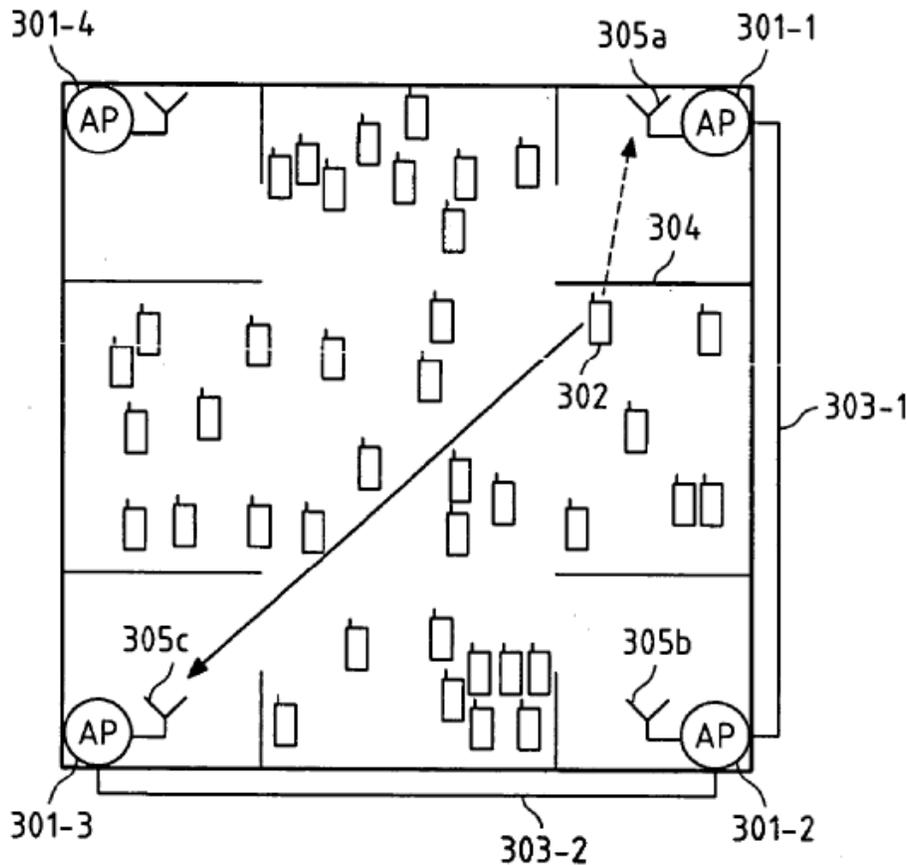


Fig.8

Fein’s Figure 8 depicts an embodiment of Fein’s wireless communication system with a distributed antenna.

Even considering the references in combination, we find the Examiner's rejection problematic because the Examiner finds Fein's station 302 teaches or suggests the recited "second wireless device" but finds Fein's fiber connections connecting access point 301-2 to access points 301-1 and 301-3 teaches or suggests "a wired electrical transmission link directly connecting the first data router [of the first wireless device] *to the second wireless device,*" as recited in independent claim 49 and a wired connection connecting the first and second wireless devices recited in independent claim 63. *See* Final Act. 4. On their face, these findings fail to teach a wired connection between Fein's element the Examiner finds teaches the recited second wireless device (i.e., station 302) and *any* other device, let alone to Fein's element the Examiner finds teaches the recited first wireless device or its first data router (i.e., one of access points 301-1 through 301-4). Moreover, the Examiner does not explain how the additionally cited disclosures teach or suggest modifying Fein to connect station 302 to any other device by a "wired transmission link," or, in the alternative, how Fein's disclosure of access points connected by a fiber connection teaches or suggests first and second wireless devices, as recited.

We are constrained by this record, for the reasons discussed above, to reverse the Examiner's rejection of claims 49 and 63 as obvious in view of Fein, Crawley, and AAPA. For the same reasons, we reverse the rejection of dependent claims 50–58, 60, 61, and 64–67, which ultimately depend from one of claims 49 and 63, as obvious in view of Fein, Crawley, and AAPA.

The Examiner does not find Rich teaches or suggests the disputed limitation recited in independent claim 49, from which claim 59 ultimately depends. Therefore, for the same reasons discussed above, we also reverse

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the Examiner's rejection of claim 59 as obvious in view of Fein, Crawley, AAPA, and Rich.

CONCLUSION

In summary:

Claims Rejected	Basis	Affirmed	Reversed
49-58, 60-67	§ 103 Fein, Crawley, AAPA		49-58, 60-67
59	§ 103 Fein, Crawley, AAPA, Rich		59
Overall Outcome			49-67

REVERSED