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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte EYRAN LIDA, AVIV SALAMON, GABY GUR COHEN, and ISRAEL GREISS

Appeal 2018-002618
Application 15/169,914[1]
Technology Center 2600

Before CARLA M. KRIVAK, HUNG H. BUI, and JON M. JURGOVAN, *Administrative Patent Judges*.

BUI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants seek our review under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 19–27 and 29–33.[2] We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.[3]

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[1] According to Appellants, the real party in interest is Valens Semiconductor Ltd. App. Br. 3.

[2] Claims 1–18 have been cancelled. Claims 28 and 34–37 have been conditionally allowed if rewritten in independent claim form including all limitations of the base claim and any intervening claims. Final Act. 14.

[3] Our Decision refers to Appellants' Appeal Brief ("App. Br.") filed September 18, 2017; Reply Brief ("Reply Br.") filed January 14, 2018; Examiner's Answer ("Ans.") mailed November 16, 2017; Final Office

STATEMENT OF THE CASE

Appellants' invention relates to "[m]ethods and systems for fast recovery, such as a transceiver that assists a second transceiver to recover rapidly from quality degradation" utilizing known data and an idle sequence sent by the transceiver. Abstract. The known data may include "bitwise complement code words of [the] idle sequence, and each bitwise complement code word appears in the idle sequence." Spec. ¶ 39.

Claims 19 and 24 are independent. Representative claim 19 is reproduced below:

> 19. A transceiver configured to assist a second transceiver to recover rapidly from quality degradation in operating point of the second transceiver, the transceiver comprising:
>
> a receiver configured to receive from the second transceiver an indication to transmit known data; wherein utilizing the known data enables the second transceiver to recover within less than 1 millisecond from the quality degradation;
>
> a transmitter configured to transmit the known data; wherein the known data comprises bitwise complement code words of an idle sequence, and each bitwise complement code word appears in the idle sequence; and
>
> the transmitter is further configured to transmit the idle sequence within less than 1 millisecond from the moment of starts transmitting the known data, and before transmitting a data frame.

App. Br. 12–15 (Claims App'x).

Action ("Final Act.") mailed April 14, 2017; and original Specification ("Spec.") filed June 1, 2016.

Evidence Considered

Goodman	US 5,473,321	Dec. 5, 1995
Lo	US 6,097,767	Aug. 1, 2000
Summers	US 2014/0189138 Al	July 3, 2014
Bohn	US 2005/0201757 Al	Sept. 15, 2005
Shimosawa	US 2012/0024566 Al	Feb. 2, 2012
Chen	US 5,111,481	May 5, 1992
Feder	US 2014/0037289 A1	Feb. 6, 2014

Examiner's Rejections

(1) Claims 19–21 and 23–25 stand rejected under 35 U.S.C. § 103 as being unpatentable over Goodman, Lo, and Summers. Final Act. 4–8.

(2) Claims 22 and 26 stand rejected under 35 U.S.C. § 103 as being unpatentable over Goodman, Lo, Summers, and Feder. Final Act. 8–9.

(3) Claims 27 and 29 stand rejected under 35 U.S.C. § 103 as being unpatentable over Goodman, Lo, Summers, and Shimosawa. Final Act. 9–11.

(4) Claims 30 and 31 stand rejected under 35 U.S.C. § 103 as being unpatentable over Goodman, Lo, Summers, Shimosawa, and Bohn. Final Act. 11–13.

(5) Claims 32 and 33 stand rejected under 35 U.S.C. § 103 as being unpatentable over Goodman, Lo, Summers, Shimosawa, and Chen. Final Act. 13–14.

ANALYSIS

With respect to independent claim 19, the Examiner finds Goodman's oil well logging sonde 502 teaches a transceiver configured to assist a second transceiver (surface modem 505) to recover rapidly from quality degradation in an operating point, as claimed. Final Act. 4 (citing Goodman 4:49–67, Fig. 5). The Examiner finds Goodman's sonde (transceiver) includes a receiver and a transmitter configured to transmit "known data" (a training sequence for repeatedly training the surface modem) to the second transceiver (surface modem), wherein utilizing the known data enables the second transceiver to recover within a time period from quality degradation, as claimed. Final Act. 4–5 (citing Goodman 3:30–41, 4:32–5:9, 7:3–67, 12:49–59). The Examined finds Goodman's "*training sequence* [that] *has a fundamental period that includes six symbols*" corresponds to the claimed "known data" that comprises "code words of an idle sequence," each code word appearing in the idle sequence as recited in claim 19. Final Act. 5–6 (citing Goodman 4:49–67, 6:41–52, 12:49–59).

To support the conclusion of obviousness, the Examiner relies on (1) Summers for teaching the claimed "known data that comprises bitwise complement code words" and (2) Lo for teaching a time period that is "within less than 1 millisecond" as claimed. Final Act. 6 (citing Summers ¶ 26; Lo 7:29–40).

Appellants contend the combination of Goodman, Lo, and Summers does not teach or suggest a transceiver transmitting an idle sequence and known data based on the idle sequence, for enabling a second transceiver to recover within less than 1 millisecond from quality degradation, as claimed. App. Br. 8–10; Reply Br. 2–3. Particularly, claim 19 requires: (i) "transmit[ting] *the known data* . . . [that] comprises bitwise complement code words of an idle sequence, and each bitwise complement code word appears in the idle sequence," to "enable[] the second transceiver to recover within less than 1 millisecond from the quality degradation"; and (ii) "transmit[ting] *the idle sequence* within less than 1 millisecond from the moment" when the transmitter "starts transmitting the known data" and "before transmitting a data frame." *See* App. Br. 12 (Claims App'x) (emphasis added); *see also* Reply Br. 2 ("the [second] transceiver expects to receive data frames within less than 1 ms, because otherwise the recovery has no meaning. In other words, the only reason for a [second] transceiver to recover is to receive data frames and by that to fulfil its goal"). In contrast to claim 19, Goodman and Summers do not teach transmitting *an idle sequence* (on which the known data is based) *within less than 1 millisecond from* the moment when known data's transmission starts, and before transmitting a data frame as part of recovery from quality degradation. App. Br. 9–10; Reply Br. 3. Additionally, Goodman, Lo, and Summers do not teach a transceiver's recovery *within less than 1 millisecond* from quality degradation by using known data as claimed. App. Br. 10–11.

We therefore agree with Appellants that Goodman does not teach transmitting *both* (i) known data *and* (ii) an idle sequence (on which the known data is based) within less than 1 millisecond from the moment when the transmitter starts transmitting the known data. App. Br. 9–10; Reply Br. 3. Rather, Goodman only teaches transmitting *known data* as a "*known training sequence*" that is a "pseudorandom training sequence to automatically 'train' [the surface modem's] adaptive FIR filter-equalizer." *See* Goodman 3:62–64, 4:13–15, 4:56 (emphasis added). That is, Goodman does not disclose the additional transmission of *an idle sequence* (on which the known data's code words are based, as "bitwise complement code words of [the] idle sequence"). App. Br. 9–10, 12; Reply Br. 3.

The Examiner responds that Goodman's known data (training sequence) is also "an 'idle sequence' during data signal transmission time since the training sequence will be transmitted again during another training time when data signal is not transmitted." Ans. 4. We do not agree. As discussed *supra*, the claimed "idle sequence" is not the same data set as the claimed "known data." Particularly, claim 19 recites "the known data comprises bitwise complement code words of an idle sequence," and "transmit[ting] the idle sequence within less than 1 millisecond from the moment" when the transmitter "starts transmitting the known data." App. Br. 9, 12. Appellants' Specification similarly explains the "idle sequence" and the "known data" are two separate data sets. *See* Spec. ¶¶ 19, 39–42, 77, 106.

We therefore agree with Appellants that Goodman does not teach a transmitter "transmit[ting] the idle sequence within less than 1 millisecond from the moment" when the transmitter "starts transmitting the known data," as recited in claim 19. App. Br. 8–10. Additionally, Goodman does not teach its transceiver can recover *within less than 1 millisecond* from quality degradation by using known data, as claimed. Rather, Goodman discloses training with the known data (training sequence) takes much longer than 1 millisecond—it may take, for example, at least 25 seconds. *See* Goodman 3:22–24, 11:55–61, 12:23–25; App. Br. 10.

Summers and Lo do not make up for the above-noted deficiencies of Goodman. The Examiner relies on Summers' USB data packet for teaching the claimed "*known data* that comprises bitwise complement code words." Final Act. 6 (citing Summers ¶ 26) (emphasis added). Summers' USB data packet, however, does not teach an *idle sequence* separate from a known data, the *idle sequence* "transmit[ted] . . . within less than 1 millisecond from the moment" when the known data's transmission starts as recited in claim 19. We additionally note Summers' USB data packet is not data *for recovering from quality degradation in* [an] *operating point* as claim 19 requires; rather, Summers' USB data packet is transmitted between computing devices operating normally to exchange application data. *See* Summers ¶¶ 5–6, 14, 22, 26; App. Br. 9–10.

Lo similarly fails to teach the claimed transceiver recovery time being within less than 1 millisecond from quality degradation by using known data and idle data. Rather, Lo discloses "determining the optimum equalizer setting can be executed *within one millisecond of exiting the blind wait state 74*." *See* Lo 7:37–39 (emphasis added); *see also* Final Act. 6. Lo's "blind wait state 74" is a state of "*about 160 milliseconds*" entered by a communication network receiver when a network "cable is first plugged into the receiver," "the blind wait state 74 prevent[ing] the [receiver's] equalizer controller 36 from calibrating on a noisy signal." *See* Lo 6:3–20 (emphasis added). Upon exiting the blind wait state, the receiver's equalizer in Lo determines an optimum receiver setting for reducing random jitter caused by the network cable. *See* Lo 4:45–50, 6:21–24, 7:24–25. Lo's optimum receiver setting is determined by iterating between "a minimum [cable] length and successively testing equalizer settings for successively longer cable lengths" and "count[ing] the number of signal transitions on the incoming data signal." *See* Lo 6:24–26, 8:30–32. Thus, Lo does not teach using an *idle sequence*, and *known data* based on the *idle sequence's code words* to "enable[] the second transceiver to recover within less than 1 millisecond from the quality degradation," as claimed. App. Br. 10–11.

The Examiner also has not shown that the additional teachings of Bohn, Shimosawa, Chen, and Feder make up for the above-noted deficiencies of Goodman, Lo, and Summers. Thus, for the reasons set forth above, we do not sustain the Examiner's rejection of independent claim 19, independent claim 24 argued for substantially the same reasons as claim 19, and claims 20–23, 25–27, and 29–33 dependent therefrom. App. Br. 7–8; Reply Br. 2.

CONCLUSION

On the record before us, we conclude Appellants have demonstrated the Examiner erred in rejecting claims 19–27 and 29–33 under 35 U.S.C. § 103.

DECISION

As such, we REVERSE the Examiner's final rejection of claims 19–27 and 29–33.

REVERSED