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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/746,899	06/08/2010	Robert Baldemair	4015-6897 / P26993-US2	2767

24112 7590 10/31/2016
COATS & BENNETT, PLLC
1400 Crescent Green, Suite 300
Cary, NC 27518

EXAMINER
LINDENBAUM, ALAN LOUIS

ART UNIT	PAPER NUMBER
2466	

MAIL DATE	DELIVERY MODE
10/31/2016	PAPER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROBERT BALDEMAIR and DAVID ASTELY

Appeal 2015-003975
Application 12/746,899
Technology Center 2400

Before ADAM J. PYONIN, JOSEPH P. LENTIVECH, and MICHAEL M. BARRY, *Administrative Patent Judges*.

LENTIVECH, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants[1] seek our review under 35 U.S.C. § 134(a) of the Examiner's non-final rejection of claims 24, 27–30, 32–34, 36–38, and 41–46. Claims 1–23, 25, 26, 31, 35, 39, and 40 have been canceled. *See* App. Br. 15–20 (Claims App'x). We have jurisdiction over the pending claims under 35 U.S.C. § 6(b).

We affirm.

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[1] According to Appellants, the real party in interest is Telefonaktiebolaget L M Ericsson. App. Br. 2.

STATEMENT OF THE CASE

Appellants' Invention

Appellants' invention generally relates to methods and devices for transmitting and receiving data on a radio channel. Spec. 1:3–4. A communication device maps and allocates a random access resource to a frequency in an uplink sub-frame of a radio frame. Spec. 3:18–19. The communication device then transmits an expression on the radio channel. Spec. 3:19–20. The expression expresses allocation of the random access resource to use in relation to at least one uplink sub-frame. Spec. 3:20–21. Claim 24, which is illustrative, reads as follows:

> 24. A method, in a base station of an evolved UMTS Terrestrial Radio Access Network (E-UTRAN) for transmitting data on a radio channel, wherein a frame comprises subframes allocated and split between uplink transmission and downlink transmission, the method comprising:
>
> mapping and allocating a plurality of random access resources to a plurality of uplink subframes of a radio frame to use within a random access period within a given cell;
>
> wherein the plurality of random access resources is allocated by:
>
> determining if enough uplink subframes are available to map each of the plurality of random access resources within the cell to different non-overlapping uplink subframes within the random access period using only Time Division Multiplexing (TDM);
>
> if the determining indicates that enough uplink subframes are available, performing TDM of the random access resources by assigning each of the plurality of random access resources within the given cell to different non-overlapping subframes within the random access period without performing Frequency Division Multiplexing (FDM); and

> if the determining indicates that not enough uplink subframes are available, performing both TDM and FDM for the plurality of random access resources within the given cell such that the at least two random access resources are mapped to different frequencies within the same subframe; and
>
> transmitting data on the radio channel comprising an expression expressing the allocation.

Rejections

Claims 24, 30, 36, and 42 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Final Act. 2.

Claims 24, 27–30, 32–34, 36–38, and 41–46 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Bertrand et al. (US 2009/0109919A1; published Apr. 30, 2009) ("Bertrand") and *Random Access Slot Configurations*, 3GPP TSG RAN WG1 #50bis, R1-074144 (October 2007) ("3GPP"). Final Act. 3–15.

Claims 24, 27–30, 32–34, 36–38, and 41–46 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Fischer et al. (US 2010/0172299A1; published July 8, 2010) ("Fischer") and 3GPP. Final Act. 15–27.

Issues on Appeal

Did the Examiner err in finding that claims 24, 30, 36, and 42 fail to comply with the written description requirement under 35 U.S.C. § 112, first paragraph?

Did the Examiner err in finding that the combination of Bertrand and 3GPP teaches or suggests

> wherein the plurality of random access resources is allocated by:
>
> > determining if enough uplink subframes are available to map each of the plurality of random access resources within the cell to different non-overlapping uplink subframes within the random access period using only Time Division Multiplexing (TDM);
> >
> > if the determining indicates that enough uplink subframes are available, performing TDM of the random access resources by assigning each of the plurality of random access resources within the given cell to different non-overlapping subframes within the random access period without performing Frequency Division Multiplexing (FDM); and
> >
> > if the determining indicates that not enough uplink subframes are available, performing both TDM and FDM for the plurality of random access resources within the given cell such that the at least two random access resources are mapped to different frequencies within the same subframe,

as recited in claim 24?

Did the Examiner err in finding that the combination of Fischer and 3GPP teaches or suggests

> wherein the plurality of random access resources is allocated by:
>
> > determining if enough uplink subframes are available to map each of the plurality of random access resources within the cell to different non-overlapping uplink subframes within the random access period using only Time Division Multiplexing (TDM);

> if the determining indicates that enough uplink subframes are available, performing TDM of the random access resources by assigning each of the plurality of random access resources within the given cell to different non-overlapping subframes within the random access period without performing Frequency Division Multiplexing (FDM); and
>
> if the determining indicates that not enough uplink subframes are available, performing both TDM and FDM for the plurality of random access resources within the given cell such that the at least two random access resources are mapped to different frequencies within the same subframe,

as recited in claim 24?

ANALYSIS

112 Rejection

Appellants contend the Examiner erred in rejecting claims 24, 30, 36, and 42 under 35 U.S.C. § 112, first paragraph. App. Br. 7–8; Reply Br. 2–4. Appellants cite to portions of the Specification (page 7, lines 30–34; page 14, lines 7–10, and page 15, lines 23–26) and contend that these portions provide the required written description support for "determining if enough uplink subframes are available to map each of the plurality of random access resources within the cell to different non-overlapping uplink subframes within the random access period using only Time Division Multiplexing (TDM)," as recited in claims 24, 30, 36, and 42. App. Br. 7–8. In particular, Appellants contend the Specification's disclosure of "[t]he mapping step may further comprise to map a plurality of random access resources to a plurality of uplink subframes and wherein the plurality of random access resources is allocated by first spreading out the plurality of random access

resources over the plurality of uplink subframes in time first" (Spec. 14:7–10) and "the control unit 201 may be arranged to allocate random access resources that extend over a plurality of uplink subframes in time first and may allocate random access resources at different frequencies when not enough uplink subframes are available in time" (Spec. 15:23–26), "clearly indicate that a determination is made of whether enough UL subframes are available to map each random access resource using only TDM" (App. Br. 8). Appellants contend the Specification discloses that random access resources may be allocated to the uplink subframes in time first and then in frequency "'**if and only if** the number of UL subframes is not sufficient' to hold all random access resources." Reply Br. 3 (citing Spec. 14:8–14). Appellants contend "the claimed 'determining' is implicit in the 'if and only if' language" of the cited portion of the Specification. *Id.*

In response, the Examiner finds

> nowhere in the reproduced passages, or anywhere else in Applicants' Specification, is there any disclosure that an explicit determination must be made of whether 'enough uplink subframes are available to map each of the plurality of random access resources within the cell to different non-overlapping uplink subframes within the random access period using only Time Division Multiplexing (TDM).'

Ans. 29.

We find Appellants' contentions persuasive. Whether a patent claim satisfies the written description requirement of 35 U.S.C. § 112, paragraph 1 depends on whether the description "clearly allow[s] persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed." *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1562–63 (Fed. Cir. 1991) (internal quotation marks omitted) (quoting *In re Gosteli*, 872 F.2d 1008,

1012 (Fed. Cir. 1989)); *see also Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). Here, as Appellants point out (Reply Br. 3), the Specification discloses "the random access resources may be allocated to the uplink subframes in time first and then in frequency if and only if the number of UL [uplink] subframes is not sufficient to hold all random access resources" (Spec. 14:12–14). One of ordinary skill in the art would understand, therefore, that prior to allocating random access resources to the uplink subframes in frequency, it must be determined whether the number of UL subframes is sufficient to hold all of the random access resources. As such, the Specification describes the claimed "determining" in compliance with the requirements of under 35 U.S.C. § 112, first paragraph.

Accordingly, we do not sustain the Examiner's rejections of claims 24, 30, 36, and 42 under 35 U.S.C. § 112, first paragraph.

§ 103 rejection based on Bertrand and 3GPP

CLAIM 24

Contention 1

Appellants contend the combination of Bertrand and 3GPP fails to teach or suggest "performing both TDM [(Time Division Multiplexing)] and FDM [(Frequency Division Multiplexing)] for the plurality of random access resources within the given cell such that the at least two random access resources are mapped to different frequencies within the same subframe," as recited in claim 24. App. Br. 8–9; Reply Br. 4–7. Appellants acknowledge that Bertrand teaches performing FDM but contend that Bertrand fails to teach or suggest performing both FDM and TDM, as required by claim 24. App. Br. 8–9 (citing Bertrand, Fig. 2); Reply. Br. 5. Appellants contend

Figure 2 of Bertrand, relied upon by the Examiner as teaching the disputed limitation, "shows that FDM alone is performed for RA resources" and that this interpretation is supported by the teachings of 3GPP. Reply. Br. 5–7 (citing 3GPP, Fig. 1; § 2.1).

We do not find Appellants' contention persuasive because they are not commensurate with the broadest reasonable interpretation of claim 24. During examination, claims are given their broadest reasonable interpretation consistent with the specification. *See In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). "Construing claims broadly during prosecution is not unfair to the applicant . . . because the applicant has the opportunity to amend the claims to obtain more precise claim coverage." *Id.* Here, claim 24 includes steps that only need to be performed if certain conditions precedent are met. *See* App. Br. 15, Claims App'x; *see also* App. Br. 11 (stating that the "determining" step "serves as a basis for determining whether to perform (1) TDM without FDM, *or* (2) both TDM and FDM." (emphasis added)). Specifically, claim 24 recites, in pertinent part:

> determining if enough uplink subframes are available to map each of the plurality of random access resources within the cell to different non-overlapping uplink subframes within the random access period using only Time Division Multiplexing (TDM);
>
> if the determining indicates that enough uplink subframes are available, *performing TDM* of the random access resources by assigning each of the plurality of random access resources within the given cell to different non-overlapping subframes within the random access period without performing Frequency Division Multiplexing (FDM); and

> if the determining indicates that not enough uplink subframes are available, *performing both TDM and FDM* for the plurality of random access resources within the given cell such that the at least two random access resources are mapped to different frequencies within the same subframe.

Id. (emphases added). Due to the language in the "performing both TDM and FDM" step, logically, this step does not need to be performed after the "performing TDM" step if the condition precedent recited in the "performing both TDM and FDM" step is not met (i.e., the determining indicates that enough uplink subframes are available). Based on the claim limitations as written, the broadest reasonable interpretation of claim 24 encompasses an instance in which the method ends after performing TDM of the random access resources when the determining indicates that enough uplink subframes are available, such that the step of "performing both TDM and FDM for the plurality of random access resources" need not be reached. Thus, the broadest reasonable interpretation of claim 24 encompasses a method where only the steps of

> determining if enough uplink subframes are available to map each of the plurality of random access resources within the cell to different non-overlapping uplink subframes within the random access period using only Time Division Multiplexing (TDM); [and]
>
> if the determining indicates that enough uplink subframes are available, performing TDM of the random access resources by assigning each of the plurality of random access resources within the given cell to different non-overlapping subframes within the random access period without performing Frequency Division Multiplexing (FDM)

are performed.[2] Accordingly, Appellants' contention is not persuasive of error.

Contention 2

Appellants contend the combination of Bertrand and 3GPP fails to teach or suggest "determining if enough uplink subframes are available to map each of the plurality of random access resources within the cell to different non-overlapping uplink subframes within the random access period using only Time Division Multiplexing (TDM)," as recited in claim 24. App. Br. 9–11.

We do not find Appellants' contention persuasive. 3GPP teaches "[d]epending on the RA load, one or more RA slots need to be allocated per RA slot period" and "in order to minimize the RA receiver dimensioning . . . the RA slots are multiplexed in time." 3GPP, § 2.1 ("Time location of Random Access slots"). 3GPP further teaches minimizing complexity of the RA receiver by utilizing a pre-defined set of RA slots locations and that

[2] The Board previously has construed similar method steps in this same manner. *See, e.g.*, *Ex Parte Fleming*, Appeal 2014-002849, 2014 WL 7146104 (PTAB Dec. 12, 2014) (expanded panel decision on rehearing), *Ex parte Urbanet*, Appeal 2011-002606, 2012 WL 4460637 (PTAB Sept. 19, 2012), and *Ex parte Katz*, Appeal 2010-006083, 2011 WL 514314 (BPAI Jan. 27, 2011); *see also Applera Corp. v. Illumina*, Inc., 375 Fed. Appx. 12, 21 (Fed. Cir. 2010) (unpublished) (affirming a district court's interpretation of a method claim as including a step that need not be practiced if the condition for practicing the step is not met); *Cybersettle, Inc. v. Nat'l Arbitration Forum, Inc*., 243 Fed. Appx. 603, 607 (Fed. Cir. 2007) (unpublished) ("It is of course true that method steps may be contingent. If the condition for performing a contingent step is not satisfied, the performance recited by the step need not be carried out in order for the claimed method to be performed.").

these slots locations are derived by applying a set of rules including "1. minimize the number of RA slots occurring in the same sub-frame." *Id.* This teaching is similar to language in Appellants' Specification, which Appellants cited to as providing adequate written description support for this limitation under 35 U.S.C. § 112, first paragraph. *See* App. Br. 7 (citing Spec. 7:30–34). Further, 3GPP's rule requiring the minimization of the number of RA slots occurring in the same sub-frame teaches that, if possible, each sub-frame includes no more than one RA slot (e.g., perform TDM of the random access resources without performing FDM) and, when there are not enough sub-frames to allow each sub-frame to include no more than one RA slot, perform TDM and FDM for the random access resources. As such, the combination of Bertrand and 3GPP teaches or suggests

> determining if enough uplink subframes are available to map each of the plurality of random access resources within the cell to different non-overlapping uplink subframes within the random access period using only Time Division Multiplexing (TDM);
>
> if the determining indicates that enough uplink subframes are available, performing TDM of the random access resources by assigning each of the plurality of random access resources within the given cell to different non-overlapping subframes within the random access period without performing Frequency Division Multiplexing (FDM); and
>
> if the determining indicates that not enough uplink subframes are available, performing both TDM and FDM for the plurality of random access resources within the given cell such that the at least two random access resources are mapped to different frequencies within the same subframe,

as recited in claim 24.

For the foregoing reasons, we are not persuaded the Examiner erred in rejecting claim 24, and claims 27–29, which depend from claim 24 and are not separately argued, under 35 U.S.C. § 103(a) based on Bertrand and 3GPP.

CLAIM 30

Claim 30 is directed to a base station of an evolved UMTS Terrestrial Radio Access Network. Although claim 30 recites functions that are substantially similar to the steps recited in the method of claim 24, as noted *supra*, claim 30 is directed to a base station. The broadest reasonable interpretation of a claim directed to a base station having structure that performs a function, which only needs to occur if a condition precedent is met, still requires structure for performing the function should the condition occur. This interpretation of claim 30 differs from the method claim because the structure (i.e., a control circuit configured to carry out the recited function should the recited condition be met) *is present regardless* of whether the condition is met and the function is actually performed. Thus, in order to show anticipation or obviousness of a claim reciting structure that performs a function tied to a condition precedent, the Examiner must cite prior art that discloses or renders obvious such structure.

Appellants do not separately argue claim 30 but, instead, rely on the arguments presented for patentability of claim 24. App. Br. 11. We find the combination of Bertrand and 3GPP teaches or suggests the disputed limitations for the reasons discussed *supra*, particularly with respect to Appellants' second contention regarding the patentability of claim 24.

Accordingly, we are not persuaded the Examiner erred in rejecting claim 30 and claims 32–34, which depend from claim 30 and are not separately argued, under 35 U.S.C. § 103(a) based on Bertrand and 3GPP.

CLAIMS 36–38 AND 41–46

Appellants do not separately argue claims 36–38 and 41–46 but, instead, rely on the arguments presented for patentability of claim 24. App. Br. 11. Accordingly, we are not persuaded the Examiner erred in rejecting claims 36–38 and 41–46 under 35 U.S.C. § 103(a) based on the combination of Bertrand and 3GPP for the reasons discussed *supra*.

§ 103 rejection based on Fischer and 3GPP

CLAIM 24

Appellants contend the Examiner erred in finding the combination of Fischer and 3GPP teaches or suggests "performing both TDM and FDM for the plurality of random access resources within the given cell such that the at least two random access resources are mapped to different frequencies within the same subframe," as recited in claim 24. App. Br. 11–14; Reply Br. 9–12.

Appellants' arguments with respect to the combination of Fischer and 3GPP are predicated on the same construction of claim 24 as used in the arguments with respect to Bertrand and 3GPP discussed *supra*. *See* App. Br. 8–14. For the reasons discussed *supra*, we find Appellants' contention is not commensurate with the broadest reasonable interpretation of claim 24 and, therefore, is unpersuasive of error.

Accordingly, we are not persuaded the Examiner erred in rejecting claim 24, and claims 27–29, which depend from claim 24 and are not separately argued, under 35 U.S.C. § 103(a) based on Fischer and 3GPP.

CLAIM 30

Appellants do not separately argue claim 30 but, instead, rely on the arguments presented for patentability of claim 24. App. Br. 14. We find the combination of Fischer and 3GPP teaches or suggests the disputed limitations for the reasons discussed *supra*, particularly with respect to Appellants' second contention regarding the patentability of claim 24.

Accordingly, we are not persuaded the Examiner erred in rejecting claim 30 and claims 32–34, which depend from claim 30 and are not separately argued, under 35 U.S.C. § 103(a) based on Fischer and 3GPP.

CLAIMS 36–38 AND 41–46

Appellants do not separately argue claims 36–38 and 41–46 but, instead, rely on the arguments presented for patentability of claim 24. App. Br. 14. Accordingly, we are not persuaded the Examiner erred in rejecting claims 36–38 and 41–46 under 35 U.S.C. § 103(a) based on the combination of Fischer and 3GPP for the reasons discussed *supra*.

DECISION

We reverse the Examiner's rejections of claims 24, 30, 36, and 42 under 35 U.S.C. § 112, first paragraph.

We affirm the Examiner's rejections of claims 24, 27–30, 32–34, 36–38, and 41–46 under 35 U.S.C. § 103(a) based on the combination of Bertrand and 3GPP.

We affirm the Examiner's rejections of claims 24, 27–30, 32–34, 36–38, and 41–46 under 35 U.S.C. § 103(a) based on the combination of Fischer and 3GPP.

Because at least one rejection encompassing all claims on appeal is affirmed, the decision of the Examiner is affirmed.

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)(iv).

AFFIRMED