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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/574,752	12/18/2014	Li Chen	5000-0012-01	3213
120281	7590	06/29/2017	EXAMINER	
Spruce Law Group, LLC 1622 Spruce St. Philadelphia, PA 19103			SMITH, GRAHAM P	
			ART UNIT	PAPER NUMBER
			2845	
			NOTIFICATION DATE	DELIVERY MODE
			06/29/2017	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eofficeaction@apcoll.com
patents@sprucelaw.com

Office Action Summary	Application No. 14/574,752	Applicant(s) CHEN ET AL.	
	Examiner GRAHAM SMITH	Art Unit 2845	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 12/18/2014.
 A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
- 2a) This action is **FINAL**.
- 2b) This action is non-final.
- 3) An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 4) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

- 5) Claim(s) 1-20 is/are pending in the application.
5a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 6) Claim(s) 11-15 is/are allowed.
- 7) Claim(s) 1-10, 16-20 is/are rejected.
- 8) Claim(s) _____ is/are objected to.
- 9) Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) The specification is objected to by the Examiner.
- 11) The drawing(s) filed on 12/18/2014 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) All b) Some** c) None of the:
 - 1. Certified copies of the priority documents have been received.
 - 2. Certified copies of the priority documents have been received in Application No. _____.
 - 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date 12/18/2014.
- 3) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 4) Other: _____.

The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statements (IDSs) submitted on 12/18/2014 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements have been considered by the examiner.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

Claim 1 is rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. 8,947,308. Although the claims at issue are not identical, they are not patentably distinct from each other because claim 1 of 8,947,308 teaches: an antenna structure, comprising: a primary antenna portion (line 2);

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an auxiliary antenna portion (line 3); and a switch coupled to the primary antenna portion and to the auxiliary antenna portion (lines 4-6), wherein the switch is coupled to a source (lines 7-8), wherein the primary antenna portion operates at a first resonance frequency range (lines 9-10), wherein the switch, when enabled in accordance with receiving a signal from the source, provides a conduction channel between the primary antenna portion and the auxiliary antenna portion (lines 14-15), wherein the first resonance frequency range of the primary antenna portion is frequency shifted to a second resonance frequency range while the conduction channel is present (lines 20-23), and wherein the switch when disabled forms a substantially open circuit between the primary antenna portion and the auxiliary antenna portion, the first resonance frequency range of the primary antenna portion being restored while the open circuit is present (lines 24-33).

Similar rejections may be made for other claims.

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 and 16-20 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over US 8154460 ("Sakata").

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Regarding claim 1, Sakata teaches an antenna structure (that of FIG. 1), comprising: a primary antenna portion (3); an auxiliary antenna portion (1); and a switch coupled to the primary antenna portion and to the auxiliary antenna portion (2), wherein the switch is coupled to a source (the switch is electrically controlled), wherein the primary antenna portion operates at a first resonance frequency range (it is a radiator), wherein the switch, when enabled in accordance with receiving a signal from the source, provides a conduction channel between the primary antenna portion and the auxiliary antenna portion (it is a conductive switch), wherein the first resonance frequency range of the primary antenna portion is frequency shifted to a second resonance frequency range while the conduction channel is present (path length will be extended as shown in FIGS 6 and 7, and wherein the switch when disabled forms a substantially open circuit between the primary antenna portion and the auxiliary antenna portion, the first resonance frequency range of the primary antenna portion being restored while the open circuit is present (the path length will be shortened with an open switch).

Regarding claims 2 and 3, diodes that are operated by a DC bias voltage are old and well known for use as switches.

Regarding claims 4, 5 and 6, see FIGS. 6 and 7 showing how closing/opening a switch changes current path length, and, therefore frequency, with multiple current path lengths available to produce response at multiple frequencies.

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Regarding claim 7, Sakata teaches a parasitic resonator portion adjacent to the primary antenna portion (2 is parasitic to 1), the parasitic resonator portion being tunable to broaden the third resonance frequency range (when sw2 is closed).

Regarding claim 8, as stated above, it is old and well known to use diodes as switches. In addition, there will be a capacitance between any of 1, 2, and 3, since any two conductors separate in space will form a capacitor.

Regarding claim 9, the auxiliary antenna portion is coupled to an RF feed circuit for transmitting and receiving RF signals (connected at P2 as shown), and wherein the RF signals are transmitted and received at the primary antenna portion via the capacitor (there will be capacitive coupling, as explained above).

Regarding claim 10, the capacitance will form across the gap between the conductors 1, 2, 3, and the switches span the same gaps.

Regarding claims 16-20, the device discussed in regard to claim 1 reads on the structure of claim 16. In addition, see FIG. 4 for a showing of a controller that controls the switches electronically. It was old and well known to use processors with memory as controllers. And, as stated above, it was old and well known to use diodes as switches. Diodes use a DC bias to switch on and off.

Allowable Subject Matter

Claims 11-15 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art does not show second portion of a primary antenna portion operating at a third

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resonance frequency range wherein a first switch when enabled causes a second auxiliary antenna portion to electrically extend the second portion, thereby causing the third range to shift to a fourth range.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GRAHAM SMITH whose telephone number is (571)270-1568. The examiner can normally be reached on Monday thru Friday 10:00 am to 6:30 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dameon Levi can be reached on (571) 272-2105. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GRAHAM SMITH/

Primary Examiner, Art Unit 2845