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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/528,624	12/04/2023	Keith George Ferry	90608.01017	3522
125632	7590	05/09/2025		
Snell & Wilmer (LA) 1 East Washington Street Suite 2700 Phoenix, AZ 85004			EXAMINER ALLEN, ANDRE J	
			ART UNIT	PAPER NUMBER
			2855	
			NOTIFICATION DATE	DELIVERY MODE
			05/09/2025	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.

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DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Information Disclosure Statement

2. The information disclosure statement(s) (IDS) submitted on 3/8/2024 & 2/4/2025 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Double Patenting

3. 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).

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 § 2146 *et seq.* 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 filing of a terminal disclaimer by itself is not a complete reply to a nonstatutory double patenting (NSDP) rejection. A complete reply requires that the terminal disclaimer be accompanied by a reply requesting reconsideration of the prior Office action. Even where the NSDP rejection is provisional the reply must be complete. See MPEP § 804, subsection I.B.1. For a reply to a non-final Office action, see 37 CFR 1.111(a). For a reply to final Office action, see 37 CFR 1.113(c). A request for reconsideration while not provided for in 37 CFR 1.113(c) may be filed after final for consideration. See MPEP §§ 706.07(e) and 714.13.

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The actual 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/apply/applying-online/eterminal-disclaimer.

Claims 58-146 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-57 of U.S. Patent No. US 11835421 B2. Although the claims at issue are not identical, they are not patentably distinct from each other because the cited '421 patent teaches all of the basic features of the claimed invention.

Claim Rejections - 35 USC § 112

4. The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 68, 69, 80, 98, 99, 120 & 121 is rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor (or for applications subject to pre-AIA 35 U.S.C. 112, the applicant), regards as the invention.

Regarding claim 68 the recitation “the electrical device is capable of processing data from the accelerometer sensor...” is ambiguous and overly broad. With emphasis on the phrase “capable of”, this is an indefinite and / or relative phrase and raises the question as to whether the electrical device is processes data from the accelerometer sensor prior to sending the one or more of a signal, or not?

Regarding claim 69 the recitation “at least one of the electrical device or accelerometer sensor is capable of processing fast fourier transformation algorithms ...” is ambiguous and overly broad. With emphasis on the phrase “capable of”, this is an indefinite and / or relative phrase and raises the question as to whether the at least one of the electrical device or accelerometer sensor processes fast fourier transformation algorithms, or not?

Regarding claim 80 the recitation “sensor or chip capable of determining a location or position...” is ambiguous and overly broad. With emphasis on the phrase “capable of”, this is an indefinite and / or relative phrase and raises the question as to whether the sensor or chip determines a location or position, or not?

Regarding claim 98 the limitation “....the housing may be open or substantially filled.... “, is ambiguous and overly broad. With emphasis on the term “substantially”, this is a relative phrase; with respect to the structure and / or description of the claimed invention, the applicant has not clearly established (i.e dimensional characteristics etc) how “substantially” is defined. Therefore, the claim is rendered indefinite.

Regarding claim 99 the limitation “....the housing is substantially closed by one or more technique.... “, is ambiguous and overly broad. With emphasis on the term “substantially”, this is a relative phrase; with respect to the structure and / or description of the claimed invention, the applicant has not clearly established (i.e dimensional characteristics etc) how “substantially” is defined. Therefore, the claim is rendered indefinite.

Regarding claims 120, 121 the recitation “device capable of determining global positioning...” is ambiguous and overly broad. With emphasis on the phrase “capable of”, this is an indefinite and / or relative phrase and raises the question as to whether global positioning is determined, or not?

Claim Rejections - 35 USC § 102

5. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis (i.e., changing from AIA to pre-AIA) for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

Claim(s) 58-60, 62-63, 66-72, 77-91, 93, 97-99, 101-104, 106-110, 115-118, 122-123, 125-138, 140-142, & 144-145 is/are rejected under 35 U.S.C. 102(a)(1) as being anticipated by YAMAGUCHI (US 20210394566 A1).

Regarding claims 58, 70, 71, 82-84, 86-98, 105, 107, 118, 127, 132 Yamaguchi teaches a housing 120 comprising an outer surface and an internal cavity [0021] (“Housing space S”) – [0022][0028](figs. 1-3) that is enclosed within the housing 120; and an electrical device 62-64

disposed within the internal cavity [0021] (“Housing space S”) – [0022][0028](figs. 1-3) and attached thereto to prevent movement (implied figs 1-3) of the electrical device within the internal cavity (figs. 1-3) , wherein the electrical device 6 62 64 comprises electrical components including one or more sensors 62 64 [0032][0033][0038]-[0039], wherein the housing 1 20 includes an opening [0021][0028] through the outer surface to the internal cavity [0021] (“Housing space S”) – [0022][0028](figs. 1-3) , wherein the electrical device 6 62 64 is configured to sense, transmit and/or receive information regarding surrounding conditions, orientation and/or location when the sensor assembly is attached with the object 10 and the object 10 is rotated in use (abstract).

Regarding claims 59 Yamaguchi teaches a retaining member 26 46 configured to accommodate attachment of the housing 1 20 therewith, wherein the retaining member 26 46 has an outside surface (figs. 1-3) configured for attachment with the object or the element that rotates with the object 10 (figs. 1-3)

Regarding claim 62 Yamaguchi teaches the electrical device 6 62 64 is encapsulated by the inner cavity of the housing 1 20 (figs. 1-3) during a process of making the housing 1 20 that operates to retain the position of the electrical device within the housing 1 20 (figs. 1-3).

Regarding claim 63 Yamaguchi teaches the retaining member 26 46 is formed from an elastomeric material that mitigates transmission of forces from the object or the element that rotates with the object to the housing when the housing 1 20 is attached to the retaining member and the retaining member is attached to the object or the element that rotates with the object 10.

Regarding claims 66, 97, 129 Yamaguchi teaches a receiver that is external from the sensor assembly 6 62 64 and that is configured to receive one or more of a signal, information, and data from the electrical device wirelessly [0004] [0036].

Regarding claims 67, 106, 108, 129, 131 Yamaguchi teaches separately or together an accelerometer sensor [0063] and processor chip 70 connected therewith, and wherein the electrical device 6 62 64 is configured to send one or more of a signal, information, and data from the sensor wirelessly to the external receiver [0004][0036].

Regarding claims 68, 106, 90 Yamaguchi teaches the electrical device 6 62 64 is capable of processing data from the accelerometer sensor [0063] prior to sending the one or more of a signal, information, and data to the external receiver (figs. 4a-4c).

Regarding claim 69, 80, 90, 122 Yamaguchi teaches at least one of the electrical device or accelerometer sensor [0069] is capable of processing fast fourier transformation algorithms to derive information about the rotating object useful for determining one or more of tread depth, tire health, tire load, vehicle dynamics, alignment, and location (figs. 6-9).

Regarding claim 72 Yamaguchi teaches the object comprises a vehicle tire 10 and a radial load [0046][0047][0049] experienced by the tire is determined from data comprising an interval of radial deformation [0046][0049].

Regarding claims 77, 105 Yamaguchi teaches a radio frequency identification element internal or external to the sensor assembly, and wherein the electrical device is configured to transmit a signal to the radio frequency element, and wherein the radio frequency identification element is configured to receive the signal and transmit a signal to the electrical device to read information provided from the radio frequency element [0036][0042].

Regarding claims 78, 79, 86 & 98 Yamaguchi teaches a printed circuit board comprising electrical circuitry; one or more of a portable primary, rechargeable, or regenerative power source for providing power to the electrical device; and an antenna for receiving and/or transmitting information from the electrical device 6 62 64 (figs. 4C-5B).

Regarding claim 81, 91, 123 Yamaguchi teaches sense one or more variables selected from the group consisting of air pressure, temperature, acceleration, tread depth, tire health, load, alignment, vehicle dynamics, and orientation or location of the environment, the sensor assembly, or the object (abstract)(figs. 1-9).

Regarding claims 85, 100, 101 Yamaguchi teaches a vulcanized vehicle tire 10 and the retaining member 26 46 is attached to an inside surface of the vehicle tire by a bonding layer before or after the vehicle tire has been vulcanized.

Regarding claim 88 Yamaguchi teaches the internal cavity comprises an open space above or below the electrical device disposed within the internal cavity (figs. 1-9).

Regarding claim 89 Yamaguchi teaches the retaining member 26 46 is formed from an elastomeric material that mitigates transmission of forces received from the object 10 when attached to the object 10 or the element when attached to the element before reaching the housing attached with the retaining member 26 46 (figs. 1-9).

Regarding claim 99 Yamaguchi et al teaches the electrical device 6 62 64 is disposed through an opening of the housing internal cavity (figs. 1-3) and positioned inside of the internal cavity (figs. 1-3) , after the electrical device 6 62 64 is positioned inside the internal cavity the opening of the housing (figs. 1-3) is substantially closed by one or more techniques including injection or encapsulation molding, or attaching together or separately a top, wall, and bottom section of similar or different material to the housing internal cavity (figs. 1-3) .

Regarding claim 102 Yamaguchi teaches the retaining member 26 46 is attached to a surface of the vehicle tire by use of an adhesive layer, mechanical fixturing, or during a process of forming the vehicle tire 10.

Regarding claim 103 Yamaguchi teaches the retaining member 26 46 is attached to the vehicle tire after the step of attaching the housing to the retaining member 26 46 (figs 1A-1B).

Regarding claim 104 Yamaguchi teaches the housing is positioned relative to the retaining member 26 46 according to a display (fig. 1B-3) feature that is located on at least one of the housing and the retaining member 26 46.

Regarding claims 91, 109, 110, 126, 128, 140 Yamaguchi teaches one or more of a tire outside diameter, a tire tread depth, tire health, slip, strain, road or soil conditions, a tire radial load, vehicle dynamics, and a vehicle camber and/or toe alignment parameter is determined from the one or more of the signals, data, or information provided by the electronic device (figs. 1A-9B)[0017][0018].

Regarding claim 127 Yamaguchi teaches the sensor assembly is configured to connect with the object or an element that rotates with the object, wherein the sensor 6 62 64 assembly comprises an electrical device 6 62 64 comprising one or more sensors 62 64, and wherein the electrical device 6 62 64 is configured to detect information for determining a dynamic parameter of the object 10.

Regarding claim 130 Yamaguchi teaches the system is configured to one or more of store or process information provided by the sensor assembly external of the sensor assembly (Figs. 1A-9).

Regarding claims 133 & 144 Yamaguchi teaches a vehicle tire 10 and the nonrotating object is a vehicle, and wherein the electrical device 6 62 64 is configured to provide information relating to an alignment of the vehicle tire 10 on the vehicle (abstract).

Regarding claim 134 Yamaguchi teaches the electrical device 6 62 64 is configured to detect information useful for (intended use recitation) determining one or more of vehicle tire radial load, and vehicle tire tread depth [0017][0018].

Regarding claim 135 Yamaguchi teaches a transmitter [0034] for (intended use recitation) sending information from the sensor assembly; a receiver [0036] located external of the sensor assembly 6 62 64 and object 10 and that is configured to receive information transmitted from the sensor assembly; and a processor 70 configured to determine from at least one of the information detected from the electrical sensor device 6 62 64 and the information transmitted from the sensor assembly, information relating to the parameter of the object 10 as attached to the nonrotating object.

Regarding claim 136 Yamaguchi teaches the system is configured to store or process information provided by the sensor assembly external of the sensor assembly (figs. 1A-9).

Regarding claim 137 Yamaguchi teaches an electrical device comprising one or more sensors 6 62 64 and that is configured to detect the information from the dynamic rotating object while rotating in use or while not rotating; and determining from the detected information the location relating to the dynamic rotating object (figs. 1A-9).

Regarding claim 138 Yamaguchi teaches the step of determining takes place externally from the sensor assembly (figs. 1A-9).

Regarding claim 93 141 Yamaguchi teaches a vehicle tire 10, and wherein the sensor assembly comprises an electrical device comprising one or more antennas (fig 4B) and sensors 6 62 64, wherein the electrical device is configured to detect information from the vehicle tire 10; and determining from the detected information the dynamic parameter of one or more of vehicle tire load and vehicle tire tread depth [0046] [0049] [0050].

Regarding claim 142 Yamaguchi teaches the vehicle tire load and vehicle tire tread depth are determined (figs. 1-9).

Regarding claim 145 Yamaguchi teaches detecting information using a sensor assembly 6 62 64 connected to the object 10 or an element that rotates with the object 10 wherein the dynamic rotating object 10 comprises a vehicle tire 10 that is attached to a vehicle (inherent), wherein the sensor assembly 6 62 64 (figs. 2A-3) comprises an electrical device comprising one or more antennas (figs. 4A-4b) and sensors 6 62 64, and wherein the electrical device is configured to detect information from the vehicle tire; and determining from the detected information the parameter of an alignment of the vehicle tire as attached to the vehicle (figs. 1A-9).

Claim Rejections - 35 USC § 103

6. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis (i.e., changing from AIA to pre-AIA) for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

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

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim(s) 73, 74, 11, 112, 119-121, 124, 139, 143 and 146 is/are rejected under 35 U.S.C. 103 as being unpatentable over YAMAGUCHI (US 20210394566 A1) in view of Carresjo et al (US 20100256874 A1).

Regarding claims 73, 74, 11, 112, 119-121, 124, 139 and 143 YAMAGUCHI teaches all of the basic features of the claimed invention. However, does not explicitly teach the step of monitoring comprises via a processor monitoring a one or more of a location of the vehicle tire on a vehicle that the vehicle tire is attached to (attached to, or a global location of the vehicle tire), and a tire location of the vehicle tire as determined from information provided by one or more of the antenna, the sensor, or chip external to the sensor assembly. Carresjo et al teaches via a processor monitoring a one or more of a location of the vehicle tire on a vehicle that the vehicle tire is attached to (attached to, or a global location of the vehicle tire), and a tire location of the vehicle tire as determined from information provided by one or more of the antenna, the sensor, or chip external to the sensor assembly (Abstract)[0001][0010][0059][0184][0282][0286](figs). 13, 14).

It would have been obvious to a person having ordinary skill in the art of tire monitoring systems before the effective filing date of the claimed invention to modify the system as taught by Yamaguchi et al with via a processor monitoring a one or more of a location of the vehicle tire on a vehicle that the vehicle tire is attached to (attached to, or a global location of the vehicle tire), and a tire location of the vehicle tire as determined from information provided by one or more of the antenna, the sensor, or chip external to the sensor assembly. Carresjo et al teaches via a processor monitoring a one or more of a location of the vehicle tire on a vehicle that the vehicle tire is attached to (attached to, or a global location of the vehicle tire), and a tire location of the vehicle tire as determined from information provided by one or more of the antenna, the sensor, or chip external to the sensor assembly as taught by Carresjo et al for the purpose of optimizing the communication(s) of tire monitoring systems by conveying information identifying location specific tire data characteristics.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDRE J ALLEN whose telephone number is (571)272-2174. The examiner can normally be reached Mon-Fri. 9am-5PM.

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, Kristina M Deherrera can be reached at (303) 297-4237. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/ANDRE J ALLEN/
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