application, the terminology regarding the "digital temperature sensor" has been removed from the claims. Therefore, since the terminology that the Office Action objected to has been cancelled from the claims, Applicant believes that the rejection is moot and therefore respectfully requests that the Examiner kindly withdraw the 35 U.S.C. § 112(a) rejection.

Also, claims 1, 4-9, and 12-18 stand rejected under 35 U.S.C. § 112(b) as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. In response, the language that the Office Action objected to has also been removed from the claims. Thus, Applicant believes that the rejection is moot and therefore respectfully requests that the Examiner kindly withdraw the 35 U.S.C. § 112(b) rejection as well.

## IV. Response to 35 U.S.C. § 103 Rejection

Claims 1, 4-9, and 12-18 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over U.S. Pub. No. 2008/0142768 ("Thorpe") in view of U.S. Pub. No. 2012/0197587 ("Luk") and U.S. Pat. No. 8,239,162 ("Tanenhaus"). Applicant respectfully traverses the rejection.

Independent claim 1, as amended, is reproduced below:

> 1. A system for leveling a vehicle that is at rest, the system comprising:
>
> a sensor device secured to a vehicle to sense an inclination of the vehicle in both a pitch direction and a roll direction, each of the one or more sensor devices comprising a printed circuit board that includes:
>
> a digital accelerometer that permits calculation in both the pitch direction and roll direction, and
>
> a processor to process data collected by the respective sensor device; and
>
> a smart device in wireless communication with the sensor device to allow information received from the sensor device about the inclination of the vehicle in both the pitch direction and the roll direction to be processed to determine an amount of adjustments in height needed to level the vehicle in both the pitch direction and the roll direction;
>
> wherein the vehicle includes four wheels, and wherein at least one of the sensor device and smart device is configured to **determine, based on the height needed to level the vehicle in both the pitch direction and the roll direction, adjustments in height to four parts of a frame of the vehicle, the four parts of the frame located at or near the four wheels of the vehicle.**

(*Emphasis added*)

Claim 1 is directed to a system for leveling a vehicle that is at rest. The system includes a sensor device in wireless communication with a smart device. The sensor device senses inclination of the vehicle in both a pitch direction and a roll direction. The system processes information about the inclination in the pitch and roll directions to determine an amount of adjustments in height needed to level the vehicle. The system is further configured to **determine**, based on the height needed to level the vehicle in both the pitch direction and the roll direction, **adjustments in height to four parts of a frame of the vehicle, the four parts of the frame located at or near the four wheels of the vehicle**.

The Office Action appears to rely on Thorpe regarding the detection of adjustments in height in the pitch and roll directions. However, Thorpe does not teach or suggest determining **adjustments in height to four parts of a frame of the vehicle**, as claimed. In particular, claim 1 defines the four parts of the frame as being **located at or near the four wheels of the vehicle**. Thorpe does not teach or suggest the adjustments in height for these particular parts of the frame of the vehicle, which are specifically located at or near the wheels. The other cited references do not overcome the deficiencies of Thorpe in this regard.

Therefore, for at least the reason that the cited references do not teach or suggest each and every feature of claim 1, Applicant contends that claim 1 is allowable over the references and is patentable under 35 U.S.C. § 103. Also, independent claims 9 and 16 include many of the same or similar features highlighted above with respect to claim 1 and are likewise believed to be allowable. In addition, claims 7, 14, and 18-30 are allowable for at least the reason that they depend directly or indirectly from one of the independent claims 1, 9, and 16 and therefore contain the same allowable features. Therefore, since all the pending claims are allowable over the cited references, Applicant respectfully requests that the Examiner kindly withdraw the 35 U.S.C. § 103 rejection.

## AUTHORIZATION FOR E-MAIL COMMUNICATION - MPEP § 502.03

Recognizing that Internet communications are not secure, we hereby authorize the USPTO to communicate with any authorized representative concerning any subject matter of this Application by electronic mail. We understand that a copy of these communications will be made of record in the Application file.

## CONCLUSION

Applicant would like to thank the Examiner for the attention and consideration accorded the present Application. It is submitted that the Application is in good and proper form for allowance. A favorable action on the part of the Examiner is respectfully solicited. The Examiner is encouraged to call the undersigned at (704) 790-3600 for any questions or if it appears that an interview would be helpful in advancing the case. Should the Examiner determine that any further action is necessary to place the Application in condition for allowance, the Examiner is encouraged to contact the undersigned at the telephone number, facsimile number, address, or email address provided below. It is not believed that any fees for additional claims, extensions of time, or the like are required beyond those that may otherwise be indicated in the documents accompanying this paper. However, if such additional fees are required, the Examiner is encouraged to notify the undersigned at the Examiner's earliest convenience.

Respectfully submitted,

Date: August 20, 2019

/Seth L. Hudson/
Seth L. Hudson
Registration No.: 48,281

Attorney for Applicant

**CLEMENTS BERNARD WALKER**
4500 Cameron Valley Parkway, Suite 350
Charlotte, North Carolina 28211 USA
Telephone: 704.366.6642
Facsimile: 704.366.9744
shudson@worldpatents.com

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 36926913 |
| **Application Number:** | 15619261 |
| **International Application Number:** | |
| **Confirmation Number:** | 2353 |
| **Title of Invention:** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| **First Named Inventor/Applicant Name:** | Charles A. Leonard |
| **Customer Number:** | 22474 |
| **Filer:** | Seth Lee Hudson/Teresa Bush-Dugar |
| **Filer Authorized By:** | Seth Lee Hudson |
| **Attorney Docket Number:** | 7137CIP |
| **Receipt Date:** | 20-AUG-2019 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 15:22:27 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | no |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | | 7137CIP_Response_to_Final.pdf | 991432<br>ea9394b5f54d484ffdab716729a6de5d2be4f6c6 | yes | 13 |

| | Multipart Description/PDF files in .zip description | | |
|---|---|---|---|
| | **Document Description** | **Start** | **End** |
| | Response After Final Action | 1 | 1 |
| | Claims | 2 | 9 |
| | Applicant Arguments/Remarks Made in an Amendment | 10 | 13 |
| **Warnings:** | | | |
| **Information:** | | | |
| | **Total Files Size (in bytes):** | 991432 | |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
**United States Patent and Trademark Office**
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/619,261 | 06/09/2017 | Charles A. Leonard | 7137CIP | 2353 |

22474 7590 09/16/2019

Clements Bernard Walker PLLC
4500 Cameron Valley Parkway
Suite 350
Charlotte, NC 28211

| EXAMINER |
|---|
| MARTINEZ BORRERO, LUIS A |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3665 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 09/16/2019 | 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):

patlaw@worldpatents.com

| **Advisory Action**<br>**Before the Filing of an Appeal Brief** | **Application No.**<br>15/619,261 | **Applicant(s)**<br>Leonard, Charles A. | |
|---|---|---|---|
| | **Examiner**<br>LUIS A MARTINEZ BORRERO | **Art Unit**<br>3665 | **AIA (FITF) Status**<br>Yes |

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

THE REPLY FILED 20 August 2019 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☑ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☐ The period for reply expires ____ months from the mailing date of the final rejection.
   b) ☑ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection.The current period for reply expires ____ months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.
   *Examiner Note*: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANTS FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37CFR 41.37(a).

AMENDMENTS

3. ☑ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☑ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☐ They raise the issue of new matter (see NOTE below);
   c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.
   NOTE: The amendments presented by the applicant require further search/consideration (See 37CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicants reply has overcome the following rejection(s): _____
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☑ For purposes of appeal, the proposed amendment(s):(a) ☑ will not be entered, or (b) ☐ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____
9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
11. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☑ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: The amendments presented by the applicant require further search/consideration.
13. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
14. ☐ Other: _____.

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:
    Claim(s) allowed:_____.
    Claim(s) objected to:_____.
    Claim(s) rejected:1,4-9 and 12-18.
    Claim(s) withdrawn from consideration:_____.

| /HUNTER B LONSBERRY/<br>Supervisory Patent Examiner, Art Unit 3665 | /L.A.M/<br>Examiner, Art Unit 3665 |
|---|---|



**ETN1003**
**313/642**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | |
|---|---|
| Inventor(s) | Charles A. LEONARD |
| Application No. | 15/619,261 |
| Filing Date | June 9, 2017 |
| Title | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| Examiner | MARTINEZ BORRERO, Luis A. |
| Art Unit | 3668 |
| Confirmation No. | 2353 |

Commissioner for Patents
Via EFS-Web

## AMENDMENT AND RESPONSE TO FINAL OFFICE ACTION

In response to the Final Office Action dated June 21, 2019, rejecting claims 1, 4-9, and 12-18 of the above-referenced Application, in which claims 1, 7, 9, 14, 16, and 18-30 are pending, Applicant respectfully requests that the following amendments be entered and remarks be considered, without prejudice or disclaimer to continued examination on the merits. In view of these amendments and remarks, Applicant submits that the Application is now in condition for allowance and respectfully requests such action. The present response is being submitted with a Request for Continued Examination (RCE) in accordance with 37 C.F.R. § 1.114.

**AMENDMENTS TO THE CLAIMS** begin on page 2; and

**APPLICANT ARGUMENTS/REMARKS MADE** begin on page 10.

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

# REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
## (Submitted Only via EFS-Web)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Application Number | 15/619,261 | Filing Date | 2017-06-09 | Docket Number (if applicable) | 7137CIP | Art Unit | 3665 |
| First Named Inventor | Charles A. Leonard | | | Examiner Name | Luis A. Martinez Borrero | | |

**This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.**
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

### SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☒ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☒ Other Response to Final Office Action filed on 8-20-19

☐ Enclosed

☐ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

### MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

### FEES

☐ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No _____

### SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

X Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| Signature of Registered U.S. Patent Practitioner | | | |
|---|---|---|---|
| Signature | /Seth L. Hudson/ | Date (YYYY-MM-DD) | 2019-09-18 |
| Name | Seth L. Hudson | Registration Number | 48281 |

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

# Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 15619261 |
| **Filing Date:** | 09-Jun-2017 |
| **Title of Invention:** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| **First Named Inventor/Applicant Name:** | Charles A. Leonard |
| **Filer:** | Seth Lee Hudson/Teresa Bush-Dugar |
| **Attorney Docket Number:** | 7137CIP |

Filed as Small Entity

**Filing Fees for Utility under 35 USC 111(a)**

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | |
| **Extension-of-Time:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Miscellaneous:** | | | | |
| RCE- 1ST REQUEST | 2801 | 1 | 650 | 650 |
| | | **Total in USD ($)** | | **650** |

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 37196153 |
| **Application Number:** | 15619261 |
| **International Application Number:** | |
| **Confirmation Number:** | 2353 |
| **Title of Invention:** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| **First Named Inventor/Applicant Name:** | Charles A. Leonard |
| **Customer Number:** | 22474 |
| **Filer:** | Seth Lee Hudson/Teresa Bush-Dugar |
| **Filer Authorized By:** | Seth Lee Hudson |
| **Attorney Docket Number:** | 7137CIP |
| **Receipt Date:** | 18-SEP-2019 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 10:03:00 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | CARD |
| Payment was successfully received in RAM | $650 |
| RAM confirmation Number | E20199HA03181809 |
| Deposit Account | |
| Authorized User | |

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Request for Continued Examination (RCE) | 7137CIP_RCE.pdf | 1350146<br>5810da165933e13a0fa8ba80b3fb56b185ecc146 | no | 3 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | Fee Worksheet (SB06) | fee-info.pdf | 30641<br>5468b47a33a687dc4f0e8c5ee5b1fab39254efef | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 1380787 | | |

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**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

| PATENT APPLICATION FEE DETERMINATION RECORD<br>Substitute for Form PTO-875 | Application or Docket Number<br>15/619,261 | Filing Date<br>06/09/2017 | ☐ To be Mailed |
|---|---|---|---|

**ENTITY:** ☐ LARGE ☑ SMALL ☐ MICRO

## APPLICATION AS FILED - PART I

| FOR | (Column 1)<br>NUMBER FILED | (Column 2)<br>NUMBER EXTRA | | RATE ($) | FEE ($) |
|---|---|---|---|---|---|
| ☐ BASIC FEE<br>(37 CFR 1.16(a), (b), or (c)) | N/A | N/A | | N/A | |
| ☐ SEARCH FEE<br>(37 CFR 1.16(k), (i), or (m)) | N/A | N/A | | N/A | |
| ☐ EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q)) | N/A | N/A | | N/A | |
| TOTAL CLAIMS<br>(37 CFR 1.16(i)) | minus 20 = | * | | x $40 = | |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h)) | minus 3 = | * | | x $210 = | |
| ☐ APPLICATION SIZE FEE (37 CFR 1.16(s)) | If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). | | | | |
| ☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j)) | | | | | |
| * If the difference in column 1 is less than zero, enter "0" in column 2. | | | | TOTAL | |

## APPLICATION AS AMENDED - PART II

| | | (Column 1) | | (Column 2) | (Column 3) | | | |
|---|---|---|---|---|---|---|---|---|
| AMENDMENT | 09/18/2019 | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | | RATE ($) | ADDITIONAL FEE ($) |
| | Total<br>(37 CFR 1.16(i)) | * 18 | Minus | ** 20 | = 0 | | x $50 = | 0 |
| | Independent<br>(37 CFR 1.16(h)) | * 3 | Minus | *** 3 | = 0 | | x $230 = | 0 |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | |
| | | | | | | | TOTAL ADD'L FEE | 0 |

| | | (Column 1) | | (Column 2) | (Column 3) | | | |
|---|---|---|---|---|---|---|---|---|
| AMENDMENT | | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | | RATE ($) | ADDITIONAL FEE ($) |
| | Total<br>(37 CFR 1.16(i)) | * | Minus | ** | = | | x $0 = | |
| | Independent<br>(37 CFR 1.16(h)) | * | Minus | *** | = | | x $0 = | |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | |
| | | | | | | | TOTAL ADD'L FEE | |

| | |
|---|---|
| * If the entry in column 1 is less than the entry in column 2, write "0" in column 3. | LIE |
| ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". | /BURNELL L ROSS/ |
| *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". | |
| The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1. | |

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

**ETN1003**
**322/642**

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/619,261 | 06/09/2017 | Charles A. Leonard | 7137CIP | 2353 |

22474 7590 11/18/2019

Clements Bernard Walker
4500 Cameron Valley Parkway
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Charlotte, NC 28211

| EXAMINER | |
|---|---|
| MARTINEZ BORRERO, LUIS A | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3665 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 11/18/2019 | 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):

patlaw@worldpatents.com

| Office Action Summary | Application No. 15/619,261 | Applicant(s) Leonard, Charles A. | |
|---|---|---|---|
| | Examiner LUIS A MARTINEZ BORRERO | Art Unit 3665 | AIA (FITF) Status Yes |

*-- 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 RCE filed 09/18/2019.

☐ 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) 1,7,9,14,16 and 18-30 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1,7,9,14,16 and 18-30 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 06/09/2017 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 _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

## 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.

### *Notice on Prior Art Rejections*

2. 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 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.

### *Continued Examination Under 37 CFR 1.114*

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 18 September 2019 has been entered.

### *Status of Claims*

4. This Office Action is in response to the Applicant's RCE filed September 18, 2019. Claims **4-6, 8, 12, 13, 15**, and **17** have been cancelled. Claims **1, 9, 14, 16**, and **18** have been amended and new claims **19-30** have been added. Claims **1, 7, 9, 14, 16**, and **18-30** are presently pending and are presented for examination.

***Response to Arguments/Remarks***

5. **Nonstatutory Double Patenting.** Applicant's arguments filed on September 18, 2019 with regard to the previous double patenting rejection have been fully considered. The applicant's arguments are not persuasive. Although the claims at issue are not identical word by word, they are not patentably distinct from each other because the claimed invention and the claims are directed to solve the same problem utilizing similar steps and components. Further, when looking at the claims one by one, the claims at issue are an obvious variation of the claims in the copending application (See: MPEP 804(II)(B)(2)). Therefore, the previous Nonstatutory Double Patenting rejection is maintained.

6. **35 U.S.C. 112(f) claim interpretation.** Applicant's arguments/amendments filed on September 18, 2019 with regard to the previous 35 U.S.C. 112(f) claim interpretation have been fully considered. Applicant's arguments/amendments are persuasive since sufficient structure exists when the claim language specifies the exact structure that performs the function in question without need to resort to other portions of the specification or extrinsic evidence for an adequate understanding of the structure. Accordingly, 35 U.S.C. 112(b) rejection is withdrawn

7. **35 U.S.C. 112(a) rejection.** Applicant's arguments/amendments filed on September 18, 2019 with regard to the previous 35 U.S.C. 112(a) rejection have been fully considered. Applicant's arguments/amendments are persuasive. Accordingly, 35 U.S.C. 112(a) rejection is withdrawn.

8. **35 U.S.C. 112(b) rejection.** Applicant's arguments/amendments filed on September 18, 2019 with regard to the previous 35 U.S.C. 112(b) rejection have been fully considered. Applicant's arguments/amendments are persuasive. Accordingly, 35 U.S.C. 112(b) rejection is withdrawn.

9. **35 USC § 103 rejection**. Applicant's arguments/amendments filed on September 18, 2019 with regard to the previous 35 USC § 103 rejection have been fully considered. Applicant's arguments, with respect to the previous 35 USC § 103 rejection are not persuasive.

The applicant further argues that "Thorpe does not teach or suggest determining adjustments in height to four parts of a frame of the vehicle, as claimed. In particular, claim 1 defines the four parts of the frame as being located at or near the four wheels of the vehicle. Thorpe does not teach or suggest the adjustments in height for these particular parts of the frame of the vehicle, which are specifically located at or near the wheels. The other cited references do not overcome the deficiencies of Thorpe in this regard".

However, the examiner respectfully disagrees. Thorpe discloses adjustments in height to four parts of a frame of the vehicle, as claimed ***(see at least ¶ 38)***. A person of ordinary skill in the art would have understood that the concept of adjustments in height to four parts of a frame of the vehicle is inclusive of an overall adjustments of the vehicle from one end of the vehicle to the other end the vehicle. The prior art of Thorpe discloses an adjustment of the vehicle in both the front-to-back and side-to-side directions See at least ***(See at least ¶ 36, "Proper placement of level unit 12 is necessary for the operation of level unit 12 to determine the amount of pitch (front/back angle) and roll (left/right) for analyzing the attitude of recreational vehicle 16 relative to a calibrated reference position or predetermined attitude at level condition***

***20…allow the components disposed in interior chamber 28 of level unit 12 to measure the pitch and roll tilt so that leveling system 10 can determine the adjustment necessary to neutralize that tilting")***. This front and back directions are inclusive of all sections of the frame vehicle that obviously include the four parts of the frame as being located at or near the four wheels of the vehicle. Additionally, with respect to the limitation of determining adjustments in height to four parts of a frame of the vehicle, Thorpe also discloses that such type of adjustment is typically used in the art of vehicle leveling mechanisms since it is required to take into account the four part of a vehicle in order to provide a zero level condition ***(See at least ¶ 5, "Typically, the leveling mechanisms are utilized at or near the sides and/or front and rear of the recreational vehicle and are adjusted to level the vehicle by raising, as opposed to lowering, one or more of the sides or ends of the vehicle an appropriate amount")***.

Therefore, for the above reasons, the examiner maintains the 35 USC § 103 rejection over claim **1**.

Claims **7 and 19-23** depend from claim **1** and therefore include the same limitation as claim **1** so they are rejected for the same reason.

Independent claims **9** and **16** contain similar limitations so they are rejected for similar reasons.

Claims **14, 24-26, and 18, 27-30** depend from independent claim **9** and **16** respectively and therefore include the same limitation as claims **9** and **16** so they are rejected for the same reasons.

***Nonstatutory Double Patenting***

10. 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 claims at issue 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); and 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 a nonstatutory double patenting ground provided the reference application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit http://www.uspto.gov/forms/. The filing date of the application will determine what form 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 http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

Claim(s) **1, 7, 9, 14, 16**, and **18-30** is/are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claim(s) **1, 10, 12, 14, 15, 20, 22, 23, 26, 28, 29, 38, and 45-54** of copending App# 14/961,787. Although the claims at issue are not identical, they are not patentably distinct from each other because the claimed invention is the same.

This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

Although the claims at issue are not identical word by word, they are not patentably distinct from each other because the claimed invention and the claims are directed to solve the same problem utilizing similar steps and components. Further, when looking at the claims one by one, the claims at issue are an obvious variation of the claims in the copending application *(See: MPEP 804(II)(B)(2))*. Therefore, the previous Nonstatutory Double Patenting rejection is maintained.

**Regarding claim 1**. The reference application discloses a system for leveling a vehicle that is at rest, the system comprising:

A sensor device secured to a vehicle to sense an inclination of the vehicle in both a pitch direction and a roll direction ***(See claim 1)***,

each of the one or more sensor devices comprising a printed circuit board that includes ***(See claim 1)***:

a digital accelerometer that permits calculation in both the pitch direction and roll direction ***(See claim 1)***, and

a processor to process data collected by the respective sensor device ***(See claim 1)***, and

a device in wireless communication with the sensor device, to allow information received from the sensor device about the inclination of the vehicle in both the pitch direction and the roll direction to be processed ***(See claim 1)***,

to determine an amount of adjustment in height needed to level the vehicle in both the pitch direction ***(See claim 1)***,

wherein the vehicle includes four wheels, and wherein at least one of the sensor device and the smart device is configured to determine, based on the height needed to level the vehicle in both the pitch direction and the roll direction ***(See claim 1)***,

adjustment in height to four parts of a frame of the vehicle, the four part frame located at or near the four wheels of the vehicle ***(See claim 1).***

**Regarding claim 9**. The reference application discloses a method for leveling a recreational vehicle having at least a front driver-side wheel, a back driver-side wheel, a front passenger-side wheel, and a back passenger-side wheel ***)***, the method comprising:

sensing an inclination of the recreational vehicle in both a pitch direction and a roll direction ***(See claim 10)***;

determining an amount of adjustments in height needed to level the recreational vehicle in both the pitch direction ***(See claim 10)***, and

calculating an adjustment in height to four portions of a frame of the recreational vehicle based on the amount of adjustments in height needed to level the vehicle in both the pitch

direction and the roll direction, the four portions of the frame located at or near the front driver-side wheel, the back driver-side wheel, the front passenger-side wheel, and the back passenger-side wheel ***(See claim 10)***; and

displaying the calculated adjustment in the height to the four portions of the frame of the recreational vehicle on the device ***(See claim 10)***.

**Regarding claim 16**, The reference application discloses a non-transitory computer readable medium comprising computer executable instructions that when executed by a processor of a computer control the computer to perform steps comprising:

receiving on a device a pitch angle measurement and a roll angle measurement of a vehicle when the vehicle is at rest from a sensor device secured to the vehicle ***(See claim 29),***

calculating in both the pitch direction and the roll direction for determining the height needed to adjust a frame of the vehicle at four locations at or near four wheels of the vehicle to level the vehicle in both the pitch direction and the roll direction ***(See claim 29);*** and

displaying, on the device, the adjustment in height to the frame of the vehicle to obtain a level position of the vehicle in the pitch direction and the roll direction ***(See claim 29).***

Claims **7 and 19-23** depend from claim **1** and therefore include the same limitation as claim **1** so they are rejected for the same reason.

Independent claims **9** and **16** contain similar limitations so they are rejected for similar reasons.

Claims **14, 24-26, and 18, 27-30** depend from independent claim **9** and **16** respectively and therefore include the same limitation as claims **9** and **16** so they are rejected for the same reasons.

***Claim Rejections - 35 USC § 112***

11. The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

> (a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

The following is a quotation of the first paragraph of pre-AIA 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims **4** and **5** rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

13. Claim **1** recites "adjustments in height to four parts of a frame of the vehicle". There is no description in the original specification filed 9 June 2017 of adjustments in height to four parts of a frame of the vehicle. "[T]he algorithm or steps/procedure taken to perform the function must be described with sufficient detail so that one of ordinary skill in the art would understand how the inventor intended the function to be performed." MPEP § 2161.01.The specification does not

specifically refers to adjustments in height to four parts of a frame of the vehicle. Therefore, the claim is rejected under 35 U.S.C. 112(a) for failing to comply with the written description requirement.

Claims **7 and 19-23** depend from claim **1** and therefore include the same limitation as claim **1** so they are rejected for the same reason.

Independent claims **9** and **16** contain similar limitations so they are rejected for similar reasons.

Claims **14, 24-26, and 18, 27-30** depend from independent claim **9** and **16** respectively and therefore include the same limitation as claims **9** and **16** so they are rejected for the same reasons.

14. Claim **22** recites "adding a rearward pitch adjustment of the first adjustment…adding a forward pitch adjustment of the first adjustment…adding the rearward pitch adjustment… adding the forward pitch adjustment". There is no description in the original specification filed 9 June 2017 of these specific types of adjustments. "[T]he algorithm or steps/procedure taken to perform the function must be described with sufficient detail so that one of ordinary skill in the art would understand how the inventor intended the function to be performed." MPEP § 2161.01.The specification does not specifically refers to adding a rearward pitch adjustment of the first adjustment…adding a forward pitch adjustment of the first adjustment…adding the rearward pitch adjustment… adding the forward pitch adjustment. Therefore, the claim is rejected under 35 U.S.C. 112(a) for failing to comply with the written description requirement.

Claims **24** and **28** contain similar limitations so they are rejected for similar reasons.

***Claim Rejections - 35 USC § 103***

15. 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 of this title, 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.

16. Claims **1, 7, 9, 14, 16**, **18-22, 24-25,** and **27-29** are rejected under 35 U.S.C 103 as being unpatentable over Thorpe et al, US 2008/0142768, in view of Luk et al, US 2012/0197587, hereinafter referred to as Thorpe and Luk, and respectively.

**Regarding claim 1**. Thorpe discloses a system for leveling a vehicle that is at rest, the system comprising:

A sensor device secured to a vehicle to sense an inclination of the vehicle in both a pitch direction and a roll direction ***(See at least ¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition… the level sensing means is a dual-axis accelerometer that is configured to determine the tilt of the recreational vehicle in both the front-to-back and side-to-side directions)***, each of the one or more sensor devices comprising a printed circuit board that includes ***(¶ 0038, via Level sensing means 38 comprises one or more tilt sensors that are configured to detect the amount of pitch and roll of recreational vehicle), (¶ 0038, via In one configuration, level sensing means 38 comprises two separate tilt sensors, one positioned in the front/back direction for determining the pitch and one positioned in the left/right direction for determining the roll)***:

a digital accelerometer that permits calculation in both the pitch direction and roll direction ***(See at least ¶ 34, via In other embodiments, the vehicle sensors 206, 208 may comprise one or more of an accelerometer, a gyroscope, a liquid capacitive device, an electrolytic level device, a gas bubble in liquid device, a pendulum device, and the like)***, and

a processor to process data collected by the respective sensor device ***(¶ 38, via level sensing means 38 is a dual-axis accelerometer, such as the model number LIS2L02AS4 low-power two-axis linear accelerometer available from ST Microelectronics, that is configured to detect tilting in both the front/back and left/right directions so as to determine the attitude of recreational vehicle 16 relative to a calibrated reference position (i.e., the level condition 20). The level sensing means 38 includes an integrated circuit interface that takes the information from the sensing element of sensing means 28 to deliver an analog signal for conversion and then use by control unit 14)***, and

a device in wireless communication with the sensor device ***(See at least fig 2, ¶ 0011, via In the preferred embodiment of the present invention, the leveling system has a level unit which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle)***, to allow information received from the sensor device about the inclination of the vehicle in both the pitch direction and the roll direction to be processed ***(Claim 1, "control unit having a display panel for displaying the pitch and roll information of said recreational vehicle and one or more control buttons for activating and/or operating said leveling system")***,

to determine an amount of adjustment in height needed to level the vehicle in both the pitch direction ***(¶ 11, "a level unit which determines how level the vehicle is and wirelessly***

***transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle")*** and the roll direction ***(¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition…The control unit also has a display panel for displaying the pitch and roll information received from the level unit and one or more operator accessible control buttons for activating and operating the leveling system)***,

wherein the vehicle includes four wheels ***(See at least fig 1)***, and wherein at least one of the sensor device and the smart device is configured to determine, based on the height needed to level the vehicle in both the pitch direction and the roll direction ***(¶ 0011, via the leveling system has a level unit which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle)***, adjustment in height to four parts of a frame of the vehicle, the four part frame located at or near the four wheels of the vehicle ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***.

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35, "Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify a device in wireless communication with the sensor device of Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

**Regarding claim 7**, Thorpe discloses the system according to claim 1, wherein the device and the sensor device communicate with each other through a wireless connection and the device is configured to receive a serial number of the sensor device so that the smart device communicates with the particular sensor device ***(See at least ¶ 0011, via the leveling system has a level unit which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle), (the examiner notes that pairing between devices is a known feature in the art and it would be obvious to implement this feature for communication between devices).***

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35, "Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify a device in wireless communication with the sensor device of Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

**Regarding claim 9**. Thorpe discloses a method for leveling a recreational vehicle having at least a front driver-side wheel, a back driver-side wheel, a front passenger-side wheel, and a back passenger-side wheel ***(See at least fig 1)***, the method comprising:

sensing an inclination of the recreational vehicle in both a pitch direction and a roll direction ***(See at least ¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition… the level sensing means is a dual-axis accelerometer that is configured to determine the tilt of the recreational vehicle in both the***

***front-to-back and side-to-side directions)***; determining an amount of adjustments in height needed to level the recreational vehicle in both the pitch direction ***(¶ 11, "a level unit which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle")*** and roll direction ***(¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition…The control unit also has a display panel for displaying the pitch and roll information received from the level unit and one or more operator accessible control buttons for activating and operating the leveling system)***, and

calculating an adjustment in height to four portions of a frame of the recreational vehicle based on the amount of adjustments in height needed to level the vehicle in both the pitch direction and the roll direction, the four portions of the frame located at or near the front driver-side wheel, the back driver-side wheel, the front passenger-side wheel, and the back passenger-side wheel ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***; and

displaying the calculated adjustment in the height to the four portions of the frame of the recreational vehicle on the device ***(Claim 1, "control unit having a display panel for displaying***

***the pitch and roll information of said recreational vehicle and one or more control buttons for activating and/or operating said leveling system")***.

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35, "Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify displaying the calculated adjustment in the height to the four portions of the frame of the recreational vehicle on the device of Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

**Regarding claim 14**, Thorpe discloses the method according to claim 9, wherein the smart device and the sensor device communicate with each other through a wireless connection and further comprising entering a serial number of the sensor device into the smart device so that the smart device communicates with the particular sensor device ***(See at least ¶ 0011, via the leveling system has a level unit which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the***

***amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle), (the examiner notes that pairing between devices is a known feature in the art and it would be obvious to implement this feature for communication between devices).***

**In regards of claim 16**, Thorpe discloses a non-transitory computer readable medium comprising computer executable instructions that when executed by a processor of a computer control the computer to perform steps comprising:

receiving on a device a pitch angle measurement and a roll angle measurement of a vehicle when the vehicle is at rest from a sensor device secured to the vehicle ***(See at least ¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition… the level sensing means is a dual-axis accelerometer that is configured to determine the tilt of the recreational vehicle in both the front-to-back and side-to-side directions), (¶ 0038, via Level sensing means 38 comprises one or more tilt sensors that are configured to detect the amount of pitch and roll of recreational vehicle), (¶ 0038, via In one configuration, level sensing means 38 comprises two separate tilt sensors, one positioned in the front/back direction for determining the pitch and one positioned in the left/right direction for determining the roll)***, calculating in both the pitch direction and the roll direction for determining the height needed to adjust a frame of the vehicle at four locations at or near four wheels of the vehicle to level the vehicle in both the pitch direction and the roll direction ***(See at least ¶ 34, via In other embodiments, the vehicle sensors 206, 208 may comprise one or more of an accelerometer, a gyroscope, a liquid capacitive device, an electrolytic level device, a gas***

***bubble in liquid device, a pendulum device, and the like), (¶ 29, via a vehicle 104 may be leveled by a leveling system 102 based on a first signal 202 representing a lateral force (i.e., tilt, roll) acting on the vehicle 104 and a second signal 204 representing a longitudinal force (i.e., pitch) acting on the vehicle 104. The first 202 and second 204 signals may be sent by one or more vehicle sensors (206, 208) associated with the vehicle 104, and received by a processing or control portion 210 of the leveling system), (¶ 36, via level unit 12 is placed on a flat surface inside recreational vehicle 16), (¶ 38, via level sensing means 38 is a dual-axis accelerometer, such as the model number LIS2L02AS4 low-power two-axis linear accelerometer available from ST Microelectronics, that is configured to detect tilting in both the front/back and left/right directions so as to determine the attitude of recreational vehicle 16 relative to a calibrated reference position (i.e., the level condition 20). The level sensing means 38 includes an integrated circuit interface that takes the information from the sensing element of sensing means 28 to deliver an analog signal for conversion and then use by control unit 14);*** and displaying, on the device, the adjustment in height to the frame of the vehicle to obtain a level position of the vehicle in the pitch direction and the roll direction ***(¶ 0040, via on FIG. 9, is used to switch control unit 14 between its various display and function modes, such as showing the pitch or roll adjustments needed to obtain level condition), (¶ 0038, via controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator).***

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35,***

***"Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify displaying, on the device, the adjustment in height to the frame of the vehicle to obtain a level position of the vehicle in the pitch direction and the roll direction of Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

**Regarding claim 18**, Thorpe discloses the non-transitory computer readable medium according to claim 16, wherein the step of displaying the adjustment in height comprises the step of displaying the change of height of the frame at or near each wheel position of the vehicle on the device ***(¶ 0012, via The control unit also has a display panel for displaying the pitch and roll information received from the level unit and one or more operator accessible control buttons for activating and operating the leveling system.), (See at least ¶ 5, via that are configured to allow the user to drive the vehicle's wheel(s) up on one or more blocks).***

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35,***

***"Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify the step of displaying the adjustment in height comprises the step of displaying the change of height of the frame at or near each wheel position of the vehicle on the device of Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

**Regarding claim 19**, Thorpe discloses the system according to claim 1, wherein the device is configured to display an image representing the vehicle on a display screen of the device, and wherein the device is further configured to display the adjustments in height to the four parts of the frame located at or near the four wheels of the vehicle ***(¶ 0040, via on FIG. 9, is used to switch control unit 14 between its various display and function modes, such as showing the pitch or roll adjustments needed to obtain level condition), (¶ 0038, via controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***.

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a***

***form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35, "Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify wherein the device is configured to display an image representing the vehicle on a display screen of the device, and wherein the device is further configured to display the adjustments in height to the four parts of the frame located at or near the four wheels of the vehicleof Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

**Regarding claim 20**, Thorpe discloses the system according to claim 1, wherein the device is further configured to display on the display screen near-real-time height adjustments remaining that are needed to level the vehicle when the vehicle is in the process of being leveled ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can***

***process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***.

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35, "Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify wherein the device is further configured to display on the display screen near-real-time height adjustments remaining that are needed to level the vehicle when the vehicle is in the process of being leveled of Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

**Regarding claim 21**, Thorpe discloses the system according to claim 1, wherein the device is configured to calculate a first adjustment in height to level the vehicle in the pitch direction ***(¶ 11, "a level unit which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of***

***the vehicle in order to level the vehicle")*** and a second adjustment in height to level the vehicle in the roll direction ***(¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition…The control unit also has a display panel for displaying the pitch and roll information received from the level unit and one or more operator accessible control buttons for activating and operating the leveling system)*** and wherein the device is further configured to calculate the adjustments in height to each of the four parts of the frame of the vehicle by adding the first adjustment with the second adjustment ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***.

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35, "Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to***

***perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify wherein the device is further configured to calculate the adjustments in height to each of the four parts of the frame of the vehicle by adding the first adjustment with the second adjustment of Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

**Regarding claim 22**, Thorpe discloses the system according to claim 21, wherein: the four parts of the frame include a first part located at or near a front driver-side wheel, a second part located at or near a back driver-side wheel, a third part located at or near a front passenger-side wheel, and a fourth part located at or near a back passenger-side wheel ***(See at least ¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition… the level sensing means is a dual-axis accelerometer that is configured to determine the tilt of the recreational vehicle in both the front-to-back and side-to-side directions)***; an adjustment in height to the first part includes adding a rearward pitch adjustment of the first adjustment with a right roll adjustment of the second adjustment ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing***

***into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***; an adjustment in height to the second part includes adding a forward pitch adjustment of the first adjustment with the right roll adjustment of the second adjustment ***(¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition…The control unit also has a display panel for displaying the pitch and roll information received from the level unit and one or more operator accessible control buttons for activating and operating the leveling system)***; an adjustment in height to the third part includes adding the rearward pitch adjustment of the first adjustment with a left roll adjustment of the second adjustment ***(¶ 11, "a level unit which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle")***; and an adjustment in height to the fourth part includes adding the forward pitch adjustment of the first adjustment with the left roll adjustment of the second adjustment ***(¶ 0038, via In one configuration, level sensing means 38 comprises two separate tilt sensors, one positioned in the front/back direction for determining the pitch and one positioned in the left/right direction for determining the roll)***.

**Regarding claim 24**, Thorpe discloses the method according to claim 9, further comprising: calculating a first adjustment in height to level the vehicle in the pitch direction ***(¶ 0040, via on FIG. 9, is used to switch control unit 14 between its various display and function modes, such as showing the pitch or roll adjustments needed to obtain level condition), (¶ 0038, via***

***controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***; calculating a second adjustment in height to level the vehicle in the roll direction ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***; the four parts of the frame include a first part located at or near a front driver-side wheel, a second part located at or near a back driver-side wheel, a third part located at or near a front passenger-side wheel, and a fourth part located at or near a back passenger-side wheel ***(¶ 0036, via Proper placement of level unit 12 is necessary for the operation of level unit 12 to determine the amount of pitch (front/back angle) and roll (left/right) for analyzing the attitude of recreational vehicle 16 relative to a calibrated reference position or predetermined attitude at level condition 20)***; calculating an adjustment in height to a first part of the frame located at or near a front driver-side wheel by adding a rearward pitch adjustment of the first adjustment and a right roll adjustment of the second adjustment ***(¶ 8, via The foregoing patents are representative of leveling systems that require manual, independent determination of the amount of height adjustment needed to place the vehicle in the level condition)***; calculating an adjustment in height to a second part of the frame located at or near a rear driver-side wheel by adding a forward pitch adjustment of the first adjustment and the right roll adjustment of the second adjustment ***(¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user***

***can operate the leveling mechanism to place the recreational vehicle in its level condition)***; calculating an adjustment in height to a third part of the frame located at or near a front passenger-side wheel by adding the rearward pitch adjustment of the first adjustment and a left roll adjustment of the second adjustment ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***; and calculating an adjustment in height to a fourth part of the frame located at or near a rear passenger-side wheel by adding the forward pitch adjustment of the first adjustment and the left roll adjustment of the second adjustment ***(See at least ¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition… the level sensing means is a dual-axis accelerometer that is configured to determine the tilt of the recreational vehicle in both the front-to-back and side-to-side directions)***.

**Regarding claim 25**, Thorpe discloses the method according to claim 9, further comprising the step of displaying on the display screen near-real-time height adjustments remaining that are needed to level the vehicle when the vehicle is in the process of being leveled ***(¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its***

***level condition…The control unit also has a display panel for displaying the pitch and roll information received from the level unit and one or more operator accessible control buttons for activating and operating the leveling system)***.

**Regarding claim 27**, Thorpe discloses the non-transitory computer readable medium according to claim 16, wherein the computer executable instructions, when executed, further control the computer to: calculate a first adjustment in height to level the vehicle in the pitch direction ***(¶ 0040, via on FIG. 9, is used to switch control unit 14 between its various display and function modes, such as showing the pitch or roll adjustments needed to obtain level condition), (¶ 0038, via controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)*** and a second adjustment in height to level the vehicle in the roll direction ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***; and calculate the adjustments in height to each of the four parts of the frame of the vehicle by adding the first adjustment with the second adjustment ***(See at least ¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition… the***

***level sensing means is a dual-axis accelerometer that is configured to determine the tilt of the recreational vehicle in both the front-to-back and side-to-side directions).***

**Regarding claim 28**, Thorpe discloses the non-transitory computer readable medium according to claim 27, wherein the four parts of the frame include a first part located at or near a front driver-side wheel, a second part located at or near a back driver-side wheel, a third part located at or near a front passenger-side wheel, and a fourth part located at or near a back passenger-side wheel ***(¶ 0040, via on FIG. 9, is used to switch control unit 14 between its various display and function modes, such as showing the pitch or roll adjustments needed to obtain level condition), (¶ 0038, via controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***, and wherein the computer executable instructions, when executed, further control the computer to: calculate an adjustment in height to the first part by adding a rearward pitch adjustment of the first adjustment with a right roll adjustment of the second adjustment ***(¶ 0036, via Proper placement of level unit 12 is necessary for the operation of level unit 12 to determine the amount of pitch (front/back angle) and roll (left/right) for analyzing the attitude of recreational vehicle 16 relative to a calibrated reference position or predetermined attitude at level condition 20)***; calculate an adjustment in height to the second part by adding a forward pitch adjustment of the first adjustment with the right roll adjustment of the second adjustment; calculate an adjustment in height to the third part by adding the rearward pitch adjustment of the first adjustment with a left roll adjustment of the second adjustment ***(See at least ¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition… the***

***level sensing means is a dual-axis accelerometer that is configured to determine the tilt of the recreational vehicle in both the front-to-back and side-to-side directions)***; and calculate an adjustment in height to the fourth part by adding the forward pitch adjustment of the first adjustment with the left roll adjustment of the second adjustment ***(¶ 0036, via Proper placement of level unit 12 is necessary for the operation of level unit 12 to determine the amount of pitch (front/back angle) and roll (left/right) for analyzing the attitude of recreational vehicle 16 relative to a calibrated reference position or predetermined attitude at level condition)***.

**Regarding claim 29**, Thorpe discloses the non-transitory computer readable medium according to claim 16, wherein the computer executable instructions, when executed, further control the computer to display, in near real time, height adjustments that are remaining for leveling the vehicle during a vehicle leveling process ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator).***

17. Claims **23, 26**, and **30** are rejected under 35 U.S.C 103 as being unpatentable over Thorpe in view of Luk, further in view of Tanenhaus et al, US 8,239,162, hereinafter referred to as Tanenhaus respectively.

**Regarding claim 23**, Thorpe discloses the system according to claim 1.

Thorpe fails to explicitly disclose further comprising a temperature calibration lookup table, wherein the smart device is configured to correct the adjustments in height based on current temperature readings and information from the temperature calibration lookup table.

However, Tanenhaus teaches a temperature calibration lookup table, wherein the smart device is configured to correct the adjustments in height based on current temperature readings and information from the temperature calibration lookup table ***(See at least Column 11, lines 4-8, "Temperature sensors 121 in a particular embodiment are part of each of the gyros 104 and accelerometer 107. The temperature sensors 121 sense temperature and compensate for changes outside the normal gyro and accelerometer ranges"), (See at least Column 15, lines 36-39, "the measurement system to provide a correction signal for correction of gyro bias errors, the accelerometer errors, and the temperature derived from an internal temperature sensor to measure and correct for temperature extremes")***.

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify a digital accelerometer that permits calculation in both the pitch direction and roll direction of Thorpe and include a temperature calibration lookup table, wherein the smart device is configured to correct the adjustments in height based on current temperature readings and information from the temperature calibration lookup table as taught by Tanenhaus because it would allow the temperature sensors sense temperature and compensate for changes outside the normal gyro and accelerometer ranges ***(See Tanenhaus at least Column 11, lines 6-8).***

**Regarding claim 26**, Thorpe discloses the method according to claim 9.

Thorpe fails to explicitly disclose further comprising the step of correcting the adjustments in height based on current temperature readings and information from a temperature calibration lookup table.

However, Tanenhaus teaches further comprising the step of correcting the adjustments in height based on current temperature readings and information from a temperature calibration lookup table ***(See at least Column 11, lines 4-8, "Temperature sensors 121 in a particular embodiment are part of each of the gyros 104 and accelerometer 107. The temperature sensors 121 sense temperature and compensate for changes outside the normal gyro and accelerometer ranges"), (See at least Column 15, lines 36-39, "the measurement system to provide a correction signal for correction of gyro bias errors, the accelerometer errors, and the temperature derived from an internal temperature sensor to measure and correct for temperature extremes")***.

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify a digital accelerometer that permits calculation in both the pitch direction and roll direction of Thorpe and include further comprising the step of correcting the adjustments in height based on current temperature readings and information from a temperature calibration lookup table as taught by Tanenhaus because it would allow the temperature sensors sense temperature and compensate for changes outside the normal gyro and accelerometer ranges ***(See Tanenhaus at least Column 11, lines 6-8).***

**Regarding claim 30**, Thorpe discloses non-transitory computer readable medium according to claim 16.

Thorpe fails to explicitly disclose wherein the computer executable instructions, when executed, further control the computer to correct the adjustments in height based on current temperature readings and information from a temperature calibration lookup table.

However, Tanenhaus teaches wherein the computer executable instructions, when executed, further control the computer to correct the adjustments in height based on current temperature readings and information from a temperature calibration lookup table ***(See at least Column 11, lines 4-8, "Temperature sensors 121 in a particular embodiment are part of each of the gyros 104 and accelerometer 107. The temperature sensors 121 sense temperature and compensate for changes outside the normal gyro and accelerometer ranges"), (See at least Column 15, lines 36-39, "the measurement system to provide a correction signal for correction of gyro bias errors, the accelerometer errors, and the temperature derived from an internal temperature sensor to measure and correct for temperature extremes")***.

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify a digital accelerometer that permits calculation in both the pitch direction and roll direction of Thorpe and include wherein the computer executable instructions, when executed, further control the computer to correct the adjustments in height based on current temperature readings and information from a temperature calibration lookup table as taught by Tanenhaus because it would allow the temperature sensors sense temperature and compensate for changes outside the normal gyro and accelerometer ranges ***(See Tanenhaus at least Column 11, lines 6-8).***

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUIS A MARTINEZ BORRERO whose email is luis.martinezborrero@uspto.gov and telephone number is (571)272-4577. The examiner can normally be reached on M-F 8:00-5:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **HUNTER LONSBERRY** can be reached on **(571)272-7298**. 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 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.

/L.A.M/
Examiner, Art Unit 3665

/HUNTER B LONSBERRY/
Supervisory Patent Examiner, Art Unit 3665

| Notice of References Cited | Application/Control No. 15/619,261 | Applicant(s)/Patent Under Reexamination Leonard, Charles A. | |
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| | Examiner LUIS A MARTINEZ BORRERO | Art Unit 3665 | Page 1 of 2 |

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| * | B | US-20080142768-A1 | 06-2008 | Thorpe; Jim | B60S9/12 | 254/423 |
| * | C | US-20070180719-A1 | 08-2007 | Donnelly; Edward J. | B60S9/02 | 33/366.11 |
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| * | K | US-20160161944-A1 | 06-2016 | Leonard; Charles A. | G05D1/0016 | 701/2 |
| * | L | US-4935883-A | 06-1990 | Hulsing II; Rand H. | G01V7/00 | 175/45 |
| * | M | US-20120197587-A1 | 08-2012 | Luk; Yiu Wah | B60W40/09 | 702/141 |

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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



**ETN1003**
**360/642**

| Notice of References Cited | Application/Control No. 15/619,261 | Applicant(s)/Patent Under Reexamination Leonard, Charles A. | |
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| | Examiner LUIS A MARTINEZ BORRERO | Art Unit 3665 | Page 2 of 2 |

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**FOREIGN PATENT DOCUMENTS**

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| * | | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
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Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/619,261 | Leonard, Charles A. |
| | Examiner | Art Unit |
| | LUIS A MARTINEZ BORRERO | 3665 |

| CPC - Searched* | | |
|---|---|---|
| **Symbol** | **Date** | **Examiner** |
| G05D1/08, 1/0891, 1/0221, 1/0088, 1/0016, | 12/07/2018 | LAM |
| B60T17/22, 8/171, 2201/04, 7/22, 8/32, | 12/07/2018 | LAM |
| G05D1/0891, 1/0016, | 06/11/2019 | LAM |
| B62D1/00, | 06/11/2019 | LAM |
| G05D 1/0891, 1/0016, 1/0011, | 11/12/2019 | LAM |
| B62D37/00, 55/075, 57/02, | 11/12/2019 | LAM |

| CPC Combination Sets - Searched* | | |
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| **Symbol** | **Date** | **Examiner** |
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| US Classification - Searched* | | | |
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| **Class** | **Subclass** | **Date** | **Examiner** |
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* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

| Search Notes | | |
|---|---|---|
| **Search Notes** | **Date** | **Examiner** |
| East Search | 12/07/2018 | LAM |
| Google Patent Search | 12/07/2018 | LAM |
| East Search | 06/11/2019 | LAM |
| East Search | 11/12/2019 | LAM |

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| | /L.A.M/<br>Examiner, Art Unit 3665 |



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| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/619,261 | Leonard, Charles A. |
| | Examiner | Art Unit |
| | LUIS A MARTINEZ BORRERO | 3665 |

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| Index of Claims | Application/Control No. | Applicant(s)/Patent Under Reexamination |
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| | 15/619,261 | Leonard, Charles A. |
| | **Examiner** | **Art Unit** |
| | LUIS A MARTINEZ BORRERO | 3665 |

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**CLAIMS**

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

| CLAIM | | DATE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Final | Original | 12/07/2018 | 06/11/2019 | 11/12/2019 | | | | | | |
| | 1 | ✓ | ✓ | ✓ | | | | | | |
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**EAST Search History**

**EAST Search History (Prior Art)**

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| L1 | 546 | ((sens$4 or detect$3) near5 (pitch and roll)) with level$3 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/11/12 12:02 |
| L2 | 0 | ((sens$4 or detect$3) near5 (pitch and roll)) with level$3 with trailer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/12 12:04 |
| L3 | 4 | ((sens$4 or detect$3) near5 (pitch and roll)) same level$3 same trailer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/12 12:05 |
| L4 | 20 | ((("Leonard") near3 ("Charles") near3 ("A"))).INV. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/11/12 12:07 |
| L5 | 246 | 1 AND ( (G05D1/0891 OR G05D1/0011 OR G05D1/0016 OR G05D1/0038 OR G05D2201/0202 OR G05D2201/0213 OR G05D1/0027 OR G05D1/021 OR G05D1/0225 OR G05D1/042 OR G05D1/0808 OR G05D1/102 OR B62D37/00 OR B62D55/00 OR B62D55/075 OR B62D57/02 OR B62D11/001 OR B62D1/00).CPC. OR (1/1 OR 701/1 OR 701/2 OR 701/31.5 OR 701/31.9 OR 701/45 OR 701/21 OR 701/33.4 OR 701/34.4 OR 701/409 OR 701/41 OR 701/420 OR 701/49 OR 701/50 OR 702/150 OR 702/154 OR 702/175 OR 73/504.12 OR 73/198 OR 123/519 OR 280/728.3 OR 700/258 OR 700/275 OR 700/83 OR 705/7.32).CCLS. OR (G05D1/00 OR G05D1/08 OR G05D1/02 OR G05D1/04 OR G05D1/10 OR B62D37/00 OR B62D55/00 OR B62D55/075 OR B62D57/02 OR B62D11/00).IPCR. ) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/11/12 12:10 |
| L6 | 74 | 5 and ((vehicle or car or automobile or truck or van or trailer) near4 (level$4)) and ((smart adj device) or phone or cell or cellphone or mobile) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | ON | 2019/11/12 12:20 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| L7 | 33 | 6 and ((pitch near5 roll) near6 level$3) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/12 12:22 |
| L8 | 32 | ("20030135312" \| "20050067227" \| "20050073141" \| "20050140759" \| "20060226612" \| "20070088275" \| "20070249990" \| "20090137943" \| "20100185139" \| "20130240812" \| "20140214283" \| "20160075311" \| "20180127249" \| "3592443" \| "4084830" \| "4216939" \| "4735603" \| "5143386" \| "6250650" \| "6584385" \| "6632194" \| "6634461" \| "7182752" \| "7193381" \| "7199534" \| "7208896" \| "7250035" \| "7285112" \| "7338473" \| "7413559" \| "7854724" \| "9114684").PN. OR ("10427654").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/11/12 12:23 |
| S1 | 1584 | ((vehicle or car or automobile) near4(level$4)) and ((sens$4 or detect$3)near5 (inclinat$4)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 22:52 |
| S2 | 486 | S1 AND ( (G05D1/0088 OR G05D2201/0213 OR G05D1/0061 OR G05D1/0223 OR G05D1/0257 OR G05D1/0016 OR G05D1/0891 OR G05D1/0011 OR G05D1/0055 OR G05D1/0094 OR G05D1/02 OR G05D1/0214 OR G05D1/0221 OR G05D1/0274 OR G05D1/0278 OR G05D1/12 OR G05D2201/0201 OR G05D2201/0208 OR G05D2201/0215 OR B60T2201/04 OR B60T7/12 OR B60T8/171 OR B60T13/662 OR B60T17/22 OR B60T2201/022 OR B60T2201/06 OR B60T2260/06 OR B60T7/122 OR B60T7/22 OR B60T8/245 OR B60T1/062 OR B60T2210/36 OR B60T2220/04 OR B60T7/042 OR B60T8/32 OR B60T8/3205 OR B60T13/74 OR B60T13/741 OR B60T1/005 OR B60T2201/09 OR B60T2201/10 OR B60T2210/14 OR B60T2210/16 OR B60T2230/03 OR B60T2230/04 OR B60T2270/89 OR B60T7/085 OR B60T7/20 OR B60T8/17 OR B60T8/1706 OR B60T8/172 OR B60T8/175 OR B60T8/17552 OR B60T8/17616 OR B60T8/3215 OR B60T8/4827 OR B60T8/52).CPC. OR (1/1 OR 348/148 OR 600/479 OR 701/41).CCLS. OR (G05D1/00 OR G05D1/02 OR G05D1/08 OR G05D1/12 OR B60T8/32 OR B60T7/12 OR B60T8/24 OR B60T13/66 OR B60T8/171 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 22:53 |

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| | | OR B60T13/74 OR B60T17/22 OR B60T1/00 OR B60T7/20 OR B60T8/172 OR B60T8/175 OR B60T8/1755 OR B60T8/1761 OR B60T8/48).IPCR. ) | | | | |
| S3 | 94 | S2 and inclinat$3 and sensor and pitch and roll | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 22:54 |
| S4 | 4 | ((vehicle or car or automobile) near4(level$4)) with ((sens$4 or detect$3)near5 (inclinat$4)) with (accelerometer or gyroscope) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 22:55 |
| S5 | 11 | ("20070180719" \| "20080142768" \| "3657695" \| "4547972" \| "4760649" \| "6037874" \| "6397133" \| "7025361" \| "7743520" \| "7786883" \| "8083015").PN. OR ("9421907").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 22:56 |
| S6 | 22 | ("3739364" \| "4085375").PN. OR ("4547972").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 22:59 |
| S7 | 17 | ("3861052" \| "3916531" \| "4182046" \| "4492029" \| "4584778" \| "4658508").PN. OR ("4760649").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 22:59 |
| S8 | 43 | ("4912662" \| "5083383" \| "5168632" \| "5259118" \| "5313713" \| "5410532" \| "5479715" \| "5488779" \| "5680208" \| "5689330").PN. OR ("6037874").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 22:59 |
| S9 | 14 | ("5176391" \| "5890721" \| "5915700" \| "6176495" \| "6351696" \| "6584385").PN. OR ("7025361").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 22:59 |
| S10 | 25 | ("20060064888" \| "3233235" \| "3324564" \| "3657551" \| "4154000" \| "4467527" \| "4625423" \| "4658508" \| "5136784" \| "5784794" \| "6526668" \| "6836972" \| "6981333").PN. OR ("7743520").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 23:00 |
| S11 | 33 | ("20060100979" \| "20070180719" \| "20070245579" \| "20080142768" \| "2155876" \| "3181203" \| "3258884" \| "3260564" \| "3417518" \| "3866365" \| "4232488" \| "4568096" \| "4572527" \| "4743037" \| "4746133" \| "4784400" \| "5078442" \| "5136784" \| "5159989" \| "5176391" \| "5188379" \| "5676385" \| "5806196" \| "6176495" \| "6526668" \| "7025361").PN. OR ("7786883").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 23:00 |
| S12 | 0 | ((vehicle or car or automobile) near4(level$4)) with ((sens$4 or detect$3)near5 (inclinat$4)) with (accelerometer or gyroscope) with ((smart adj device) or d evice or phone or cell or cellphone) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:02 |
| S13 | 33690 | ((vehicle or car or automobile) near4 | US-PGPUB; | OR | OFF | 2018/12/06 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | (level$4)) and ((smart adj device) or phone or cell or cellphone or mobile) | USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | | | 23:05 |
| S14 | 10900 | S13 AND ( (G05D1/0088 OR G05D1/0891).CPC. OR (1/1).CCLS. OR (G05D1/02 OR G05D1/00 OR G05D1/08).IPCR. ) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:06 |
| S15 | 799 | S14 and sensor and pitch and roll | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:07 |
| S16 | 457 | S15 and (( sens$3 or determin$3 or detect$3) near5 (inclination or orientation)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:08 |
| S17 | 149 | S16 and accelerometer and gyroscope | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:09 |
| S18 | 47 | S17 and ((adjust$3) near5 (level$3 or inclination or tilt)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:10 |
| S19 | 2615 | (pitch near3 roll) with level$3 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:12 |
| S20 | 349 | S19 and (axis near3 accelerometer) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:12 |
| S21 | 204 | S20 and ((adjust$3 or alter$3 or chang$3 or modif$4) near3 (level$3 or orientation or inclination)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; | OR | OFF | 2018/12/06 23:13 |

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|---|---|---|---|---|---|---|
| | | | IBM_TDB | | | |
| S22 | 18 | ((pitch near3 roll) near6 (axis near3 accelerometer)) with (vehicle car or automobile) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:14 |
| S23 | 0 | (tri-axial) with accelerometer with 1evel$3 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:16 |
| S24 | 52 | (tri-axial) with accelerometer with level$3 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:17 |
| S25 | 124 | (tri-axial) with accelerometer with (temperature adj sensor) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:18 |
| S26 | 57 | ((tri-axial) near3 accelerometer) near6(temperature adj sensor) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:18 |
| S27 | 14 | "4935883" | USPAT | OR | OFF | 2018/12/06 23:21 |
| S28 | 1 | "20120197587" | US-PGPUB | OR | OFF | 2018/12/06 23:22 |
| S29 | 1 | "20120208520" | US-PGPUB | OR | OFF | 2018/12/06 23:23 |
| S30 | 410 | ((("LEONARD") near3 ("Charles"))).INV. | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT | OR | OFF | 2018/12/06 23:26 |
| S31 | 1718 | G05D1/0891.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:29 |
| S32 | 657 | B62D1/00.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; | OR | ON | 2019/06/11 23:29 |

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|---|---|---|---|---|---|---|
| | | | IBM_TDB | | | |
| S33 | 3389 | G05D1/0016.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:29 |
| S34 | 11555 | ((temperature adj sensor) NEAR5 (GYRO OR ACCELEROMETER)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:31 |
| S35 | 1 | S31 and S34 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:31 |
| S36 | 2 | S32 and S34 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:31 |
| S37 | 16 | S33 and S34 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:31 |
| S38 | 154 | ("20080059068" \| "20090265193" \| "20100012776" \| "20100215212" \| "20100228418" \| "20100268409" \| "20100286859" \| "20110270470" \| "20120170797" \| "20120197461" \| "20120250010" \| "20120271461" \| "20130206915" \| "20130216089" \| "20130238168" \| "20140061376" \| "20140259549" \| "20140267627" \| "20140277842" \| "20140316614" \| "20140316616" \| "20140324405" \| "20140336928" \| "20150325064" \| "20150343644" \| "20150344136" \| "20150377405" \| "20160004795" \| "20160176542" \| "4818990" \| "5575438" \| "7400384" \| "7496226" \| "7872794" \| "7929125" \| "8060270" \| "8207484" \| "8212995" \| "8346578" \| "8818572" \| "8830485" \| "8872818" \| "8874283" \| "8896819" \| "8997362" \| "9009000" \| "9129355" \| "9152863" \| "9162753" \| "9256225" \| "9256994" \| "9273981" \| "9310221" \| "9329599" \| "9340283" \| "9403593" \| "9406237").PN. OR ("2012/0194551" \| "9609288").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/06/11 23:32 |
| S39 | 1 | ("9008860").PN. OR ("9483050").URPN. | US-PGPUB; | OR | OFF | 2019/06/11 |

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| | | | USPAT; USOCR | | | 23:32 |
| S40 | 1 | ("20160314621").PN. OR ("9760089").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/06/11 23:32 |
| S41 | 1 | "20120197587" | US-PGPUB | OR | OFF | 2019/06/11 23:33 |
| S42 | 18 | "8239162" | US-PGPUB; USPAT | OR | OFF | 2019/06/11 23:34 |
| S43 | 1 | "20080142768" | US-PGPUB; USPAT | OR | OFF | 2019/06/11 23:35 |
| S44 | 412 | ((("LEONARD") near3 ("Charles"))).INV. | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT | OR | OFF | 2019/06/11 23:35 |
| S45 | 2 | S44 and S31 | US-PGPUB; USPAT | OR | OFF | 2019/06/11 23:35 |
| S46 | 650123 | G05D 1/0016.cpc | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/11 21:20 |
| S47 | 650123 | G05D 1/0891.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/11 21:20 |
| S48 | 447 | ((vehicle or car or automobile) near4 (level$4)) and ((sens$4 or detect$3) near5 (inclinat$4)) and (accelerometer or gyroscope) and ((smart adj device) or device or phone cell or cellphone) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/11 21:20 |
| S49 | 24 | S46 and S48 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/11 21:21 |
| S50 | 8 | ("20070083318" \| "20080059007" \| "20100131168" \| "20100161173" \| "6067031" \| "6285929" \| "6301530").PN. OR ("9187095").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/11/11 21:21 |
| S51 | 3 | ("20090142173" \| "20090143985" \| "5572449").PN. OR ("10093309").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/11/11 21:22 |
| S52 | 20 | S49 and ((smart adj device) or phone or cell or cellphone or pda or (personal adj computer)) | US-PGPUB; USPAT; USOCR | OR | ON | 2019/11/11 21:22 |
| S53 | 24 | S47 and S48 | US-PGPUB; USPAT; USOCR | OR | ON | 2019/11/11 21:23 |

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|---|---|---|---|---|---|---|
| S54 | 20 | S53 and ((smart adj device) or phone or cell or cellphone or pda or (personal adj computer)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/11 21:23 |

**EAST Search History (Interference)**

< This search history is empty>

**11/ 12/ 2019 12:25:10 PM**
**C:\ Users\ lmartinezborrero\ Documents\ EAST\ Workspaces\ 15619261.wsp**

UNITED STATES PATENT AND TRADEMARK OFFICE

# USPTO Automated Interview Request (AIR)

Jan 16 2020

This paper requesting to schedule and/or conduct an interview is appropriate because:

I have previously submitted an authorization for internet communications in a patent application. See form SB/0439.

Name(s):
Glenn W. Brown

S-signature:
/Glenn Brown/

Registration Number:
51310

U.S. Application Number:
15619261

Confirmation Number:
2353

E-mail Address:
gbrown@worldpatents.com

Phone Number:
+1 704-790-3600

Proposed Time of Interview:
2-4-2020 11:00 AM ET

Prefered Interview Type:
Telephonic

I am the applicant or applicant's representative for this application.

Topic for Discussion:
I would like to discuss potential claim amendments to independent claims 1, 9, and 16, particularly to clarify that specific adjustments in height at or near the four wheels of the vehicle are "determined" or "calculated" in the present claims. Although Thorpe makes adjustments to level a vehicle with respect to pitch and roll, such that these adjustments may "affect" the positioning of the entire frame, Thorpe does not "calculate" four adjustments at or near the four wheels.

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/619,261 | 06/09/2017 | Charles A. Leonard | 7137CIP | 2353 |

22474 7590 02/07/2020

Clements Bernard Walker
4500 Cameron Valley Parkway
Suite 350
Charlotte, NC 28211

| EXAMINER |
|---|
| MARTINEZ BORRERO, LUIS A |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3665 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 02/07/2020 | 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):

patlaw@worldpatents.com

| Applicant-Initiated Interview Summary | Application No. 15/619,261 | Applicant(s) Leonard, Charles A. | | |
|---|---|---|---|---|
| | Examiner LUIS A MARTINEZ BORRERO | Art Unit 3665 | AIA (First Inventor to File) Status Yes | Page 1 of 2 |

All participants (applicant, applicants representative, PTO personnel):

1. LUIS A MARTINEZ BORRERO (Examiner); Telephonic

2. Glenn W. Brown (Attorney)

**Date of Interview:** 04 February 2020

**Claims Discussed:** Claims 1, 9, and 16 were discussed.

**Prior Art Discussed:** Thorpe et al.

**Amendment proposed:** The applicant proposed some amendments to overcome 103 rejection where the application clarifies that specific adjustments in height at or near the four wheels of the vehicle are being displayed along with an image of the vehicle such that the image of the vehicle moves as the angles in the respective pitch and roll directions of the RV change. Proposed amendments that include this feature overcome current rejection and further search/consideration will be required. No agreement was reached.

---

**Issues Discussed:**

**Item(s) under 35 U.S.C. 103:**

| /HUNTER B LONSBERRY/<br>Supervisory Patent Examiner, Art Unit 3665 | /L.A.M/<br>Examiner, Art Unit 3665 |
|---|---|

**Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04**
Please further see:
MPEP 713.04
Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b)
37 CFR § 1.2 Business to be transacted in writing



**Applicant recordation instructions:** The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

**Examiner recordation instructions:** Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | |
|---|---|
| Inventor(s) | Charles A. LEONARD |
| Application No. | 15/619,261 |
| Filing Date | June 9, 2017 |
| Title | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| Examiner | MARTINEZ BORRERO, Luis A. |
| Art Unit | 3665 |
| Confirmation No. | 2353 |

Commissioner for Patents
Via EFS-Web

## AMENDMENT AND RESPONSE TO NON-FINAL OFFICE ACTION

In response to the Non-Final Office Action dated November 18, 2019, rejecting claims 1, 7, 9, 14, 16, and 18-30 of the above-referenced Application, in which claims 1, 7, 9, 14, 16, and 18-32 are currently pending, Applicant respectfully requests that the following amendments be entered and remarks be considered, without prejudice or disclaimer to continued examination on the merits. In view of these amendments and remarks, Applicant submits that the Application is now in condition for allowance and respectfully requests such action.

**AMENDMENTS TO THE CLAIMS** begin on page 2; and

**APPLICANT ARGUMENTS/REMARKS MADE** begin on page 9.



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## CLAIMS

Please amend the claims as follows, without prejudice or disclaimer to continued examination on the merits:

1. (Currently Amended) A system for leveling a vehicle that is at rest, the system comprising:

a sensor device secured to a vehicle to sense an inclination of the vehicle in both a pitch direction and a roll direction, ~~each of the one or more~~ the sensor ~~devices~~ device comprising a printed circuit board that includes:

a digital accelerometer that permits calculation in both the pitch direction and roll direction, and

a processor to process data collected by the ~~respective sensor device~~ digital accelerator; and

a smart device in wireless communication with the sensor device, the smart device including a display screen ~~to allow information received from the sensor device about the inclination of the vehicle in both the pitch direction and the roll direction to be processed to determine an amount of adjustments in height needed to level the vehicle in both the pitch direction and the roll direction~~;

wherein ~~the vehicle includes four wheels, and wherein~~ at least one of the sensor device and smart device is configured to determine, ~~based on the~~ height adjustment amounts needed to level the vehicle in both the pitch direction and the roll direction ~~, adjustments in height to four parts of a frame of the vehicle, the four parts of the frame located at or near the four wheels of the vehicle~~;

wherein the smart device is configured to display at least one image representative of the vehicle on the display screen;

wherein the smart device is further configured to simultaneously display a plurality of adjustment indicators based on the height adjustment amounts on the display screen, each adjustment indicator showing an amount of adjustment in height needed at a respective section of the vehicle to level the vehicle in at least one of the pitch direction and roll direction; and

wherein the smart device is further configured to update the display screen, substantially in real time, as one or more of the height adjustment amounts are changed.



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2-6. (Cancelled)

7. (Original) The system according to claim 1, wherein the smart device and the sensor device communicate with each other through a wireless connection and the smart device is configured to receive a serial number of the sensor device so that the smart device communicates with the particular sensor device.

8. (Cancelled)

9. (Currently Amended) A method for leveling a recreational vehicle ~~having at least a front driver-side wheel, a back driver-side wheel, a front passenger-side wheel, and a back passenger-side wheel~~, the method comprising:

sensing an inclination of the recreational vehicle in both a pitch direction and a roll direction;

determining ~~an amount of adjustments in~~ height adjustment amounts needed to level the recreational vehicle in both the pitch direction and roll direction; ~~and~~

~~calculating an adjustment in height to four portions of a frame of the recreational vehicle based on the amount of adjustments in height needed to level the vehicle in both the pitch direction and the roll direction, the four portions of the frame located at or near the front driver-side wheel, the back driver-side wheel, the front passenger-side wheel, and the back passenger-side wheel, and~~

displaying ~~the calculated adjustment in the height to the four portions of the frame~~ at least one image representative of the recreational vehicle on ~~the~~ a display screen of a smart device;

simultaneously displaying a plurality of adjustment indicators on the display screen, the adjustment indicators related to the height adjustment amounts needed to level the recreational vehicle, each adjustment indicator showing an amount of adjustment in height needed at a respective section of the recreational vehicle to level the recreational vehicle in at least one of the pitch direction and roll direction; and

updating the display screen, essentially in real time, as the height adjustment amounts are changed.

10-13. (Cancelled)



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14. (Currently Amended) The method according to claim 9, wherein the step of sensing the inclination of the recreational vehicle in both a pitch direction and a roll direction is performed by a corresponding sensor device, and wherein the smart device and the corresponding sensor device communicate with each other through a wireless connection, the method ~~and~~ further comprising ~~entering~~ storing a serial number of the corresponding sensor device ~~into~~ in the smart device so that the smart device communicates with the ~~particular~~ corresponding sensor device.

15. (Cancelled)

16. (Currently Amended) A non-transitory computer readable medium comprising computer executable instructions that, when executed by a processor of a ~~computer~~ smart device, control the ~~computer~~ smart device to perform steps comprising:

receiving ~~on a smart device~~ a pitch angle measurement and a roll angle measurement of a vehicle when the vehicle is at rest from a sensor device secured to the vehicle;

calculating in both the pitch direction and the roll direction for determining the height needed to adjust ~~a frame of~~ the vehicle ~~at four locations at or near four wheels of the vehicle~~ to level the vehicle in both the pitch direction and the roll direction; and

displaying, on a display screen of the smart device, at least one image representative of the vehicle;

displaying, on the display screen of the smart device, a plurality of adjustment indicators based on the adjustment in height to ~~the frame of~~ the vehicle to obtain a level position of the vehicle in the pitch direction and the roll direction, each adjustment indicator showing an amount of adjustment in height needed at a respective section of the vehicle to level the vehicle in at least one of the pitch direction and roll direction; and

updating the display screen of the smart device, essentially in real time, as the height needed to adjust the vehicle to level the vehicle changes.

17. (Cancelled)



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18. (Currently Amended) The non-transitory computer readable medium according to claim 16, wherein the step of displaying the adjustment in height comprises the step of displaying, on the display screen of the smart device, the ~~change of~~ needed adjustment in height of ~~the~~ at least one portion of a frame of the vehicle at or near ~~each~~ at least one wheel position of the vehicle ~~on the smart device~~.

19. (Currently Amended) The system according to claim 1, ~~wherein the smart device is configured to display an image representing the vehicle on a display screen of the smart device, and wherein~~ the ~~smart device is further configured to display~~ adjustment indicators show the adjustments in height to ~~the four parts~~ at least one part of ~~the~~ a frame of the vehicle located at or near ~~the~~ at least one of four wheels of the vehicle.

20. (Previously Presented) The system according to claim 1, wherein the smart device is further configured to display on the display screen near-real-time height adjustments remaining that are needed to level the vehicle when the vehicle is in the process of being leveled.

21. (Currently Amended) The system according to ~~claim 1~~ claim 19, wherein the smart device is configured to calculate a first adjustment in height to level the vehicle in the pitch direction and a second adjustment in height to level the vehicle in the roll direction, and wherein the smart device is further configured to calculate the adjustments in height to ~~each of the four parts~~ the at least one part of the frame of the vehicle by adding the first adjustment with the second adjustment.

22. (Currently Amended) The system according to claim 21, wherein:

the ~~four parts~~ at least one part of the frame ~~include~~ includes a first part located at or near a front driver-side wheel, a second part located at or near a back driver-side wheel, a third part located at or near a front passenger-side wheel, and a fourth part located at or near a back passenger-side wheel;

an adjustment in height, if any, to the first part includes ~~adding~~ combining a rearward pitch adjustment of the first adjustment with a right roll adjustment of the second adjustment;



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an adjustment in height, if any, to the second part includes ~~adding~~ combining a forward pitch adjustment of the first adjustment with the right roll adjustment of the second adjustment;

an adjustment in height, if any, to the third part includes ~~adding~~ combining the rearward pitch adjustment of the first adjustment with a left roll adjustment of the second adjustment; and

an adjustment in height, if any, to the fourth part includes ~~adding~~ combining the forward pitch adjustment of the first adjustment with the left roll adjustment of the second adjustment.

23. (Currently Amended) The system according to claim 1, further comprising a temperature calibration lookup table, wherein the smart device is configured to correct the ~~adjustments in~~ height adjustment amounts based on current temperature readings and information from the temperature calibration lookup table.

24. (Currently Amended) The method according to claim 9, further comprising:

calculating a first adjustment in height to level the vehicle in the pitch direction;

calculating a second adjustment in height to level the vehicle in the roll direction;

calculating ~~an~~ any needed adjustment in height to a first part of the frame located at or near a front driver-side wheel by ~~adding~~ combining a rearward pitch adjustment of the first adjustment and a right roll adjustment of the second adjustment;

calculating ~~an~~ any needed adjustment in height to a second part of the frame located at or near a rear driver-side wheel by ~~adding~~ combining a forward pitch adjustment of the first adjustment and the right roll adjustment of the second adjustment;

calculating ~~an~~ any needed adjustment in height to a third part of the frame located at or near a front passenger-side wheel by ~~adding~~ combining the rearward pitch adjustment of the first adjustment and a left roll adjustment of the second adjustment; and

calculating ~~an~~ any needed adjustment in height to a fourth part of the frame located at or near a rear passenger-side wheel by ~~adding~~ combining the forward pitch adjustment of the first adjustment and the left roll adjustment of the second adjustment.

25. (Previously Presented) The method according to claim 9, further comprising the step of displaying on the display screen near-real-time height adjustments remaining that are needed to level the vehicle when the vehicle is in the process of being leveled.

26. (Currently Amended) The method according to claim 9, further comprising the step of correcting the ~~adjustments in~~ height adjustment amounts based on current temperature readings and information from a temperature calibration lookup table.

27. (Currently Amended) The non-transitory computer readable medium according to claim 16, wherein the computer executable instructions, when executed, further control the ~~computer~~ smart device to:

calculate a first adjustment in height to level the vehicle in the pitch direction and a second adjustment in height to level the vehicle in the roll direction; and

calculate ~~the~~ adjustments in height to each of ~~the four parts~~ at least one part of ~~the~~ a frame of the vehicle by ~~adding~~ combining the first adjustment with the second adjustment.

28. (Currently Amended) The non-transitory computer readable medium according to claim 27, wherein the ~~four parts~~ at least one part of the frame ~~include~~ includes a first part located at or near a front driver-side wheel, a second part located at or near a back driver-side wheel, a third part located at or near a front passenger-side wheel, and a fourth part located at or near a back passenger-side wheel, and wherein the computer executable instructions, when executed, further control the ~~computer~~ smart device to:

calculate ~~an~~ any needed adjustment in height to the first part by ~~adding~~ combining a rearward pitch adjustment of the first adjustment with a right roll adjustment of the second adjustment;

calculate ~~an~~ any needed adjustment in height to the second part by ~~adding~~ combining a forward pitch adjustment of the first adjustment with the right roll adjustment of the second adjustment;

calculate ~~an~~ any needed adjustment in height to the third part by ~~adding~~ combining the rearward pitch adjustment of the first adjustment with a left roll adjustment of the second adjustment; and

calculate ~~an~~ any needed adjustment in height to the fourth part by ~~adding~~ combining the forward pitch adjustment of the first adjustment with the left roll adjustment of the second adjustment.

29. (Currently Amended) The non-transitory computer readable medium according to claim 16, wherein the computer executable instructions, when executed, further control the ~~computer~~ smart device to display, in near real time, height adjustments that are remaining for leveling the vehicle during a vehicle leveling process.

30. (Currently Amended) The non-transitory computer readable medium according to claim 16, wherein the computer executable instructions, when executed, further control the ~~computer~~ smart device to correct the adjustments in height based on current temperature readings and information from a temperature calibration lookup table.

31. (New) The system according to claim 1, wherein the vehicle includes four wheels, and wherein at least one of the sensor device and smart device is configured to determine, based on the height needed to level the vehicle in both the pitch direction and the roll direction, adjustments in height to at least one of four parts of a frame of the vehicle, the four parts of the frame located at or near the four wheels of the vehicle.

32. (New) The system according to claim 1, wherein the information sensed by the sensor device regarding the inclination of the vehicle in both the pitch direction and the roll direction is processed to determine an amount of adjustment in height to a rear section or front section of the vehicle needed to level the vehicle in the pitch direction and to determine an amount of adjustment in height to a first side section or a second side section of the vehicle needed to level the vehicle in the roll direction.

## REMARKS

This Amendment and Response is being submitted in response to the Non-Final Office Action dated November 18, 2019. In the present amendment, claims 1, 9, 14, 16, 18, 19, 21, 23, and 26-30 have been amended and new claims 31 and 32 have been added to further clarify the subject matter which Applicant regards as the present invention, without prejudice or disclaimer to continued examination on the merits. These amendments are fully supported in the Specification, Drawings, and Claims of the Application and no new matter has been added. Based upon the amendments and the remarks presented herein, reconsideration of the Application is respectfully requested.

### I. Examiner Interview

Applicant wishes to express appreciation to Examiner Luis A. Martinez Borrero for conducting an interview with Applicant's representative on February 4, 2020. During the interview, the differences between the cited references and various aspects of the present application were discussed. In particular, Applicant's representative demonstrated that the cited references of record do not appear to teach or suggest the aspect of displaying an image of a vehicle on a display screen of a smart device and the aspect of displaying a plurality of indicators on the display screen for showing a plurality of needed adjustments to the height of the vehicle at different positions on the vehicle. The Examiner seems to agree that the cited references do not teach or suggest these features of the present application.

### II. Response to Double Patenting Rejection

Claims 1, 7, 9, 14, 16, and 18-30 are provisionally rejected on the ground of non-statutory double patenting as allegedly being unpatentable over claims 1, 10, 12, 14, 15, 20, 22, 23, 26, 28, 29, 38, and 45-54 of co-pending App. No. 14/961,787. Applicant respectfully traverses the Double Patenting rejection for at least the reason that the claims in the present application and the claims in App. No. 14/961,787 have been extensively amended and are directed to patentably distinct inventions. Therefore, Applicant respectfully requests that the Examiner kindly withdraw the Double Patenting rejection.

## III. Response to 35 U.S.C. § 112 Rejections

The rejection of claims 4-5 is considered to be moot in light of the cancellation of these claims in the previous Response.

Claims 1, 7, 9, 14, 16, and 18-30 stand rejected under 35 U.S.C. § 112(a) as allegedly failing to comply with the written description requirement regarding the terminology "adjustment in height to four parts of a frame of the vehicle." The terminology regarding "four parts" of the frame has been removed from independent claims 1, 9, and 16; dependent claims 18, 19, 21, 22, 24, 27, 28, and 31 have been amended to refer to adjustments in height of "at least one" portion or part of a "frame" of the vehicle. Also, Applicant wishes to direct the Examiner's attention to FIG. 12 and paragraphs [0084] – [0087] (i.e., from U.S. Pub. No. 2018/0004230 corresponding to the present application), which sufficiently disclose the action of determining changes in height of the frame at or near the wheels 72, 74, 76, 78 of the vehicle 70. Therefore, the specification, with the aid of the drawings, provides support for the adjustments in height of portions of the frame at, near, or proximate to the wheels of the vehicle, as claimed in the amended pending claims.

Claims 22, 24, and 28 also stand rejected under 35 U.S.C. § 112(a) as allegedly failing to comply with the written description requirement regarding the terminology "adding a rearward (or forward) pitch adjustment…" regarding the calculation of adjustments to the frame at or near each wheel. Applicant wishes to direct the Examiner's attention to paragraph [0087] of the present disclosure. As an example of one type of calculation, paragraph [0087] discloses that "the calculated change in height of the frame of the motorized RV 70 proximate to the front driver side wheel 72 is the **sum** of any calculated adjustment in height at the front 71 of the RV 70 and on the driver side 75 of the RV 70." One of ordinary skill in the art, having an understanding of the present disclosure, will appreciate that the disclosed "sum of… adjustment in height at the front 71 of the RV 70…" provides support for the claimed "adding" a rearward/forward "pitch adjustment" to a right/left "roll adjustment"

Applicant therefore contends that the original specification, drawings, and claims provide sufficient support for the amended claims that are now pending in the present application. Thus, Applicant respectfully requests that the Examiner kindly withdraw the 35 U.S.C. § 112(a) rejections.

## IV. Response to 35 U.S.C. § 103 Rejection

Claims 1, 7, 9, 14, 16, 18-22, 24, 25, and 27-29 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over U.S. Pub. No. 2008/0142768 ("Thorpe") in view of U.S. Pub. No. 2012/0197587 ("Luk"). Also, claims 23, 26, and 30 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Thorpe in view of Luk and U.S. Pat. No. 8,239,162 ("Tanenhaus"). Applicant respectfully traverses the rejections, as discussed below.

Independent claim 1, as amended, is reproduced below:

> 1. A system for leveling a vehicle that is at rest, the system comprising:
>
> a sensor device secured to a vehicle to sense an inclination of the vehicle in both a pitch direction and a roll direction, the sensor device comprising a printed circuit board that includes:
>
> a digital accelerometer that permits calculation in both the pitch direction and roll direction, and
>
> a processor to process data collected by the digital accelerator; and
>
> a smart device in wireless communication with the sensor device, the smart device including a display screen;
>
> wherein at least one of the sensor device and smart device is configured to determine height adjustment amounts needed to level the vehicle in both the pitch direction and the roll direction;
>
> wherein the smart device is configured to **display at least one image representative of the vehicle on the display screen**;
>
> wherein the smart device is further configured to **simultaneously display a plurality of adjustment indicators** based on the height adjustment amounts on the display screen, each adjustment indicator **showing an amount of adjustment in height needed at a respective section of the vehicle** to level the vehicle in at least one of the pitch direction and roll direction; and
>
> wherein the smart device is further configured to **update the display screen, substantially in real time, as one or more of the height adjustment amounts are changed**.

(*Emphasis added*)

Claim 1 is directed to a system for leveling a vehicle that is at rest. The system includes a sensor device in wireless communication with a smart device. The sensor device senses inclination of the vehicle in both a pitch direction and a roll direction and determines height adjustment amounts needed to level the vehicle in both the pitch direction and the roll direction. The smart device is configured to **display at least one image representative of the vehicle on the display screen**. Although Thorpe discloses a control unit 14 having a display panel 90, it should be noted that the display panel 90 of Thorpe merely displays one indication of a leveling


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adjustment on only one side of the vehicle. Thorpe does not teach or suggest displaying **at least one image representative of the vehicle on the display screen**, as claimed.

Claim 1 further recites that the smart device is configured to **simultaneously display a plurality of adjustment indicators** based on the height adjustment amounts on the display screen. In particular, each adjustment indicator shows **an amount of adjustment in height needed at a respective section of the vehicle** to level the vehicle in at least one of the pitch direction and roll direction. Again, Thorpe is only configured to display one leveling adjustment at a time, and therefore does not teach or suggest **simultaneously** displaying multiple **adjustment indicators**, as claimed.

Also, claim 1 recites that the smart device is further configured to **update the display screen, substantially in real time, as one or more of the height adjustment amounts are changed**. Thorpe appears to be silent with respect to updating a display screen in real time when height adjustments are being made.

Luk and Tanenhaus also do not teach or suggest the above-highlighted features of amended claim 1 and therefore fail to overcome the deficiencies of Thorpe. For at least the reason that the cited references do not teach or suggest each and every feature of claim 1, Applicant contends that claim 1 is allowable over the references and is patentable under 35 U.S.C. § 103.

Also, independent claims 9 and 16 include many of the same or similar features highlighted above with respect to claim 1 and are likewise believed to be allowable. In addition, claims 7, 14, and 18-32 are allowable for at least the reason that they depend directly or indirectly from one of the independent claims 1, 9, and 16 and therefore contain the same allowable features. Therefore, since all the pending claims are allowable over the cited references, Applicant respectfully requests that the Examiner kindly withdraw the 35 U.S.C. § 103 rejections.


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## AUTHORIZATION FOR E-MAIL COMMUNICATION - MPEP § 502.03

Recognizing that Internet communications are not secure, we hereby authorize the USPTO to communicate with any authorized representative concerning any subject matter of this Application by electronic mail. We understand that a copy of these communications will be made of record in the Application file.

## CONCLUSION

Applicant would like to thank the Examiner for the attention and consideration accorded the present Application. It is submitted that the Application is in good and proper form for allowance. A favorable action on the part of the Examiner is respectfully solicited. The Examiner is encouraged to call the undersigned at (704) 790-3600 for any questions or if it appears that an interview would be helpful in advancing the case. Should the Examiner determine that any further action is necessary to place the Application in condition for allowance, the Examiner is encouraged to contact the undersigned at the telephone number, facsimile number, address, or email address provided below. It is not believed that any fees for additional claims, extensions of time, or the like are required beyond those that may otherwise be indicated in the documents accompanying this paper. However, if such additional fees are required, the Examiner is encouraged to notify the undersigned at the Examiner's earliest convenience.

Respectfully submitted,

Date: February 11, 2020

/Seth L. Hudson /
Seth L. Hudson
Registration No.: 48,281

Attorney for Applicant

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# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 38549476 |
| **Application Number:** | 15619261 |
| **International Application Number:** | |
| **Confirmation Number:** | 2353 |
| **Title of Invention:** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| **First Named Inventor/Applicant Name:** | Charles A. Leonard |
| **Customer Number:** | 22474 |
| **Filer:** | Seth Lee Hudson/Teresa Bush-Dugar |
| **Filer Authorized By:** | Seth Lee Hudson |
| **Attorney Docket Number:** | 7137CIP |
| **Receipt Date:** | 11-FEB-2020 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 10:45:38 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

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|---|---|
| Submitted with Payment | no |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | | 7137CIP_Response_to_OA.pdf | 201279<br>99ff97a5340d067f25e73d5a21b3551c8d6c1318 | yes | 13 |

| | Multipart Description/PDF files in .zip description | | |
|---|---|---|---|
| | **Document Description** | **Start** | **End** |
| | Amendment/Req. Reconsideration-After Non-Final Reject | 1 | 1 |
| | Claims | 2 | 8 |
| | Amendment/Req. Reconsideration-After Non-Final Reject | 9 | 12 |
| | Internet Communications Authorized | 13 | 13 |
| **Warnings:** | | | |
| **Information:** | | | |
| | **Total Files Size (in bytes):** | 201279 | |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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| PATENT APPLICATION FEE DETERMINATION RECORD<br>Substitute for Form PTO-875 | Application or Docket Number<br>15/619,261 | Filing Date<br>06/09/2017 | ☐ To be Mailed |
|---|---|---|---|

**ENTITY:** ☐ LARGE ☑ SMALL ☐ MICRO

## APPLICATION AS FILED - PART I

| FOR | (Column 1)<br>NUMBER FILED | (Column 2)<br>NUMBER EXTRA | | RATE ($) | FEE ($) |
|---|---|---|---|---|---|
| ☐ BASIC FEE<br>(37 CFR 1.16(a), (b), or (c)) | N/A | N/A | | N/A | |
| ☐ SEARCH FEE<br>(37 CFR 1.16(k), (i), or (m)) | N/A | N/A | | N/A | |
| ☐ EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q)) | N/A | N/A | | N/A | |
| TOTAL CLAIMS<br>(37 CFR 1.16(i)) | minus 20 = | * | | x $40 = | |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h)) | minus 3 = | * | | x $210 = | |
| ☐ APPLICATION SIZE FEE (37 CFR 1.16(s)) | If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). | | | | |
| ☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j)) | | | | | |
| * If the difference in column 1 is less than zero, enter "0" in column 2. | | | | TOTAL | |

## APPLICATION AS AMENDED - PART II

| | | (Column 1) | | (Column 2) | (Column 3) | | | |
|---|---|---|---|---|---|---|---|---|
| AMENDMENT | 02/11/2020 | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | | RATE ($) | ADDITIONAL FEE ($) |
| | Total<br>(37 CFR 1.16(i)) | * 20 | Minus | ** 20 | = 0 | | x $50 = | 0 |
| | Independent<br>(37 CFR 1.16(h)) | * 3 | Minus | *** 3 | = 0 | | x $230 = | 0 |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | |
| | | | | | | | TOTAL ADD'L FEE | 0 |

| | | (Column 1) | | (Column 2) | (Column 3) | | | |
|---|---|---|---|---|---|---|---|---|
| AMENDMENT | | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | | RATE ($) | ADDITIONAL FEE ($) |
| | Total<br>(37 CFR 1.16(i)) | * | Minus | ** | = | | x $0 = | |
| | Independent<br>(37 CFR 1.16(h)) | * | Minus | *** | = | | x $0 = | |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | |
| | | | | | | | TOTAL ADD'L FEE | |

| | |
|---|---|
| * If the entry in column 1 is less than the entry in column 2, write "0" in column 3. | LIE |
| ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". | /BRENDA V HARRISON/ |
| *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". | |
| The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1. | |

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/619,261 | 06/09/2017 | Charles A. Leonard | 7137CIP | 2353 |

22474 7590 04/28/2020

Clements Bernard Walker
4500 Cameron Valley Parkway
Suite 350
Charlotte, NC 28211

| EXAMINER | |
|---|---|
| MARTINEZ BORRERO, LUIS A | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3665 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 04/28/2020 | 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):

cwright@worldpatents.com
patlaw@worldpatents.com

| Office Action Summary | Application No. 15/619,261 | Applicant(s) Leonard, Charles A. | |
|---|---|---|---|
| | Examiner LUIS A MARTINEZ BORRERO | Art Unit 3665 | AIA (FITF) Status Yes |

*-- 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 02/11/2020.

☐ 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) 1,7,9,14,16 and 18-32 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1,7,9,14,16 and 18-32 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 06/09/2017 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 _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

## 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.

### *Notice on Prior Art Rejections*

2. 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 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.

### *Status of Claims*

3. This Office Action is in response to the applicant's arguments/remarks filed February 11, 2020. Claims **1-6, 8, 10-13,** and **15-17** have been canceled. Claims **1, 9, 14, 16, 18-19, 21-24**, and **26-30** have been amended while claims **31-32** are newly added. Claims **1, 7, 9, 14, 16,** and **18-32** are presently pending and are presented for examination.

### *Response to Arguments/Remarks*

4. **Nonstatutory Double Patenting.** Applicant's arguments filed on February 11, 2020 with regard to the previous double patenting rejection have been fully considered. The applicant's arguments are not persuasive. Although the claims at issue are not identical word by word, they are not patentably distinct from each other because the claimed invention and the claims are

directed to solve the same problem utilizing similar steps and components. Further, when looking at the claims one by one, the claims at issue are an obvious variation of the claims in the copending application (See: MPEP 804(II)(B)(2)). Therefore, the previous Nonstatutory Double Patenting rejection is maintained.

5. **35 USC § 112 Rejection**. Applicant's amendments/arguments filed on February 11, 2020 with regard to the previous 35 USC § 112 rejection have been fully considered. Applicant's amendments/arguments, with respect to the previous 35 USC § 112 rejection are persuasive. Therefore, the rejection has been withdrawn.

6. **35 USC § 103 Rejection**. Applicant's amendments/arguments filed on February 11, 2020 with regard to the previous 35 USC § 103 rejection have been fully considered. Applicant's amendments/arguments, with respect to the previous 35 USC § 103 rejection are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Zhong et al, US 10,086,954, presented in this Final Office Action.

***Nonstatutory Double Patenting***

7. 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 claims at issue 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); and 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 a nonstatutory double patenting ground provided the reference application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit http://www.uspto.gov/forms/. The filing date of the application will determine what form 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 http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

Claim(s) **1, 7, 9, 14, 16**, and **18-32** is/are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claim(s) **1, 10, 12, 14, 15, 20, 22, 23, 26, 28, 29, 38, and 45-54** of copending App# 14/961,787. Although the claims at issue are not identical, they are not patentably distinct from each other because the claimed invention is the same.

This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

Although the claims at issue are not identical word by word, they are not patentably distinct from each other because the claimed invention and the claims are directed to solve the same problem utilizing similar steps and components. Further, when looking at the claims one by one, the claims at issue are an obvious variation of the claims in the copending application *(See: MPEP 804(II)(B)(2))*. Therefore, the previous Nonstatutory Double Patenting rejection is maintained.

**Regarding claim 1**. The reference application discloses a system for leveling a vehicle that is at rest, the system comprising:

A sensor device secured to a vehicle to sense an inclination of the vehicle in both a pitch direction and a roll direction ***(See claim 1)***,

each of the one or more sensor devices comprising a printed circuit board that includes ***(See claim 1)***:

a digital accelerometer that permits calculation in both the pitch direction and roll direction ***(See claim 1)***, and

a processor to process data collected by the respective sensor device ***(See claim 1)***, and

a device in wireless communication with the sensor device, to allow information received from the sensor device about the inclination of the vehicle in both the pitch direction and the roll direction to be processed ***(See claim 1)***,

to determine an amount of adjustment in height needed to level the vehicle in both the pitch direction ***(See claim 1)***,

wherein the vehicle includes four wheels, and wherein at least one of the sensor device and the smart device is configured to determine, based on the height needed to level the vehicle in both the pitch direction and the roll direction ***(See claim 1)***,

adjustment in height to four parts of a frame of the vehicle, the four part frame located at or near the four wheels of the vehicle ***(See claim 1).***

**Regarding claim 9**. The reference application discloses a method for leveling a recreational vehicle having at least a front driver-side wheel, a back driver-side wheel, a front passenger-side wheel, and a back passenger-side wheel ***)***, the method comprising:

sensing an inclination of the recreational vehicle in both a pitch direction and a roll direction ***(See claim 10)***;

determining an amount of adjustments in height needed to level the recreational vehicle in both the pitch direction ***(See claim 10)***, and

calculating an adjustment in height to four portions of a frame of the recreational vehicle based on the amount of adjustments in height needed to level the vehicle in both the pitch direction and the roll direction, the four portions of the frame located at or near the front driver-side wheel, the back driver-side wheel, the front passenger-side wheel, and the back passenger-side wheel ***(See claim 10)***; and

displaying the calculated adjustment in the height to the four portions of the frame of the recreational vehicle on the device ***(See claim 10)***.

**Regarding claim 16**, The reference application discloses a non-transitory computer readable

medium comprising computer executable instructions that when executed by a processor of a computer control the computer to perform steps comprising:

receiving on a device a pitch angle measurement and a roll angle measurement of a vehicle when the vehicle is at rest from a sensor device secured to the vehicle ***(See claim 29),***

calculating in both the pitch direction and the roll direction for determining the height needed to adjust a frame of the vehicle at four locations at or near four wheels of the vehicle to level the vehicle in both the pitch direction and the roll direction ***(See claim 29);*** and

displaying, on the device, the adjustment in height to the frame of the vehicle to obtain a level position of the vehicle in the pitch direction and the roll direction ***(See claim 29).***

Claims **7, 19-23**, and **31-32** depend from claim **1** and therefore include the same limitation claim **1** so they are rejected for the same reason.

Independent claims **9** and **16** contain similar limitations so they are rejected for similar reasons.

Claims **14, 24-26, and 18, 27-30** depend from independent claim **9** and **16** respectively and therefore include the same limitation as claims **9** and **16** so they are rejected for the same reasons.

### *Claim Rejections - 35 USC § 103*

8. 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 of this title, 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.

***Claim Rejections - 35 USC § 103***

9. 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 of this title, 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.

10. Claims **1, 7, 9, 14, 16, 18-22, 24-25, 27-29, and 31-32** are rejected under 35 U.S.C 103 as being unpatentable over Thorpe et al, US 2008/0142768, in view of Luk et al, US 2012/0197587, Further in view of Zhong et al, US 10,086,954, hereinafter referred to as Thorpe, Luk, and Zhong respectively.

**Regarding claim 1**. Thorpe discloses a system for leveling a vehicle that is at rest, the system comprising:

A sensor device secured to a vehicle to sense an inclination of the vehicle in both a pitch direction and a roll direction ***(See at least ¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition… the level sensing means is a dual-axis accelerometer that is configured to determine the tilt of the recreational vehicle in both the front-to-back and side-to-side directions)***, the sensor device comprising a printed circuit board that includes ***(¶ 0038, via Level sensing means 38 comprises one or more tilt sensors that are configured to detect the amount of pitch and roll of recreational vehicle), (¶***

***0038, via In one configuration, level sensing means 38 comprises two separate tilt sensors, one positioned in the front/back direction for determining the pitch and one positioned in the left/right direction for determining the roll)***:

a digital accelerometer that permits calculation in both the pitch direction and roll direction ***(See at least ¶ 34, via In other embodiments, the vehicle sensors 206, 208 may comprise one or more of an accelerometer, a gyroscope, a liquid capacitive device, an electrolytic level device, a gas bubble in liquid device, a pendulum device, and the like)***, and

a processor to process data collected by the digital accelerator ***(¶ 38, via level sensing means 38 is a dual-axis accelerometer, such as the model number LIS2L02AS4 low-power two-axis linear accelerometer available from ST Microelectronics, that is configured to detect tilting in both the front/back and left/right directions so as to determine the attitude of recreational vehicle 16 relative to a calibrated reference position (i.e., the level condition 20). The level sensing means 38 includes an integrated circuit interface that takes the information from the sensing element of sensing means 28 to deliver an analog signal for conversion and then use by control unit 14)***, and

a device in wireless communication with the sensor device, the device including a display screen ***(See at least fig 2, ¶ 0011, via In the preferred embodiment of the present invention, the leveling system has a level unit which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle)***, ***(Claim 1, "control unit having a display panel for displaying the pitch and roll information of said recreational vehicle and one or more control buttons for activating and/or operating said leveling system")***, ***(¶ 11, "a level unit***

***which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle"), (¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition…The control unit also has a display panel for displaying the pitch and roll information received from the level unit and one or more operator accessible control buttons for activating and operating the leveling system), (See at least fig 1)***, wherein at least one of the sensor device and the device is configured to determine height adjustment amounts needed to level the vehicle in both the pitch direction and the roll direction ***(¶ 0011, via the leveling system has a level unit which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle), (¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***.

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a***

***form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35, "Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify a device in wireless communication with the sensor device of Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

Thorpe fails to explicitly disclose wherein the smart device is configured to display at least one image representative of the vehicle on the display screen; wherein the smart device is further configured to simultaneously display a plurality of adjustment indicators based on the height adjustment amounts on the display screen, each adjustment indicator showing an amount of adjustment in height needed at a respective section of the vehicle to level the vehicle in at least one of the pitch direction and roll direction; and wherein the smart device is further configured to update the display screen, substantially in real time, as one or more of the height adjustment amounts are changed.

However, Zhong teaches wherein the smart device is configured to display at least one image representative of the vehicle on the display screen ***(See at least fig 5-6, Col 4, lines 31-34, "The user interface control can include an icon representing the UAV and the additional information includes a three-dimensional (3D) depiction of the UAV's spatial orientation***

***relative to the remote terminal."), (Col 10, lines 15-16, "The remote display can be part of a mobile computing device such as a smartphone or a tablet")***; wherein the smart device is further configured to simultaneously display a plurality of adjustment indicators based on the height adjustment amounts on the display screen ***(See at least fig 5-6, Col 3, lines 10-17, "The icon 10 display region can include a UAV pitch/roll indicator used to indicate a pitch orientation or a roll orientation of the UAV. The UAV pitch/roll indicator can be used to indicate both a pitch orientation and a roll orientation of the UAV. The UAV 15 pitch/roll indicator can comprise a graphical horizon line indicator")***, each adjustment indicator showing an amount of adjustment in height needed at a respective section of the vehicle to level the vehicle in at least one of the pitch direction and roll direction ***(See at least fig 5-6, Col 33, lines 28-38, "a leveled or horizontal line 626 parallel to the horizon 627 can indicate zero roll rotation of the UAV. A counter clockwise tilt of the line 626 relative to the horizon 627 (i.e., the leftmost point of the line is lower than the rightmost end of the line) can indicate a corresponding counter clockwise roll of the UAY (from the UAV's perspective). Likewise, a clockwise tilt of the line 626 relative to the horizon 627 (i.e., the leftmost end of the line is higher than the rightmost end of the line) can indicate a corresponding clockwise roll of the UAY (from the UAV's perspective).")***; and wherein the smart device is further configured to update the display screen, substantially in real time, as one or more of the height adjustment amounts are changed ***(Col 16, lines 3-5, "the displayed information may be updated in real-time or nearly real-time reflected updated received information.")***.

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify the system for leveling a vehicle of Thorpe and include wherein the smart device is configured to display at least one image

representative of the vehicle on the display screen; wherein the smart device is further configured to simultaneously display a plurality of adjustment indicators based on the height adjustment amounts on the display screen, each adjustment indicator showing an amount of adjustment in height needed at a respective section of the vehicle to level the vehicle in at least one of the pitch direction and roll direction; and wherein the smart device is further configured to update the display screen, substantially in real time, as one or more of the height adjustment amounts are changed as taught by Zhong because it would allow the display device to generate multiple indicators where the yaw orientation of UAV can be illustrated by the orientation of the UA V icon, the pitch and roll orientation of the UAV can be illustrated by the level indicator in the substantially circular region, the yaw and roll orientation of payload can be illustrated by the FO V indicator, and the roll angle indicator respectively (***Zhong, Col 34, lines 13-19***).

**Regarding claim 7**, Thorpe discloses the system according to claim 1, wherein the device and the sensor device communicate with each other through a wireless connection and the device is configured to receive a serial number of the sensor device so that the smart device communicates with the particular sensor device ***(See at least ¶ 0011, via the leveling system has a level unit which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle), (the examiner notes that pairing between devices is a known feature in the art and it would be obvious to implement this feature for communication between devices).***

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35, "Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify a device in wireless communication with the sensor device of Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

**Regarding claim 9**. Thorpe discloses a method for leveling a recreational vehicle ***(See at least fig 1)***, the method comprising:

sensing an inclination of the recreational vehicle in both a pitch direction and a roll direction ***(See at least ¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition… the level sensing means is a dual-axis accelerometer that is configured to determine the tilt of the recreational vehicle in both the front-to-back and side-to-side directions)***; determining height adjustment amount needed to level the recreational vehicle in both the pitch direction ***(¶ 11, "a level unit which determines***

***how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle")*** and roll direction ***(¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition…The control unit also has a display panel for displaying the pitch and roll information received from the level unit and one or more operator accessible control buttons for activating and operating the leveling system), (¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***.

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35, "Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to***

***perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify displaying the calculated adjustment in the height to the four portions of the frame of the recreational vehicle on the device of Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

Thorpe fails to explicitly disclose at least one image representative of the recreational vehicle on a display screen of a smart device, simultaneously displaying a plurality of adjustment indicators on the display screen, the adjustment indicators related to the height adjustment amounts needed to level the recreational vehicle, each adjustment indicator showing an amount of adjustment in height needed at a respective section of the recreational vehicle to level the recreational vehicle in at least one of the pitch direction and roll direction; and updating the display screen, essentially in real time, as the height adjustment amounts are changed.

However, Zhong teaches at least one image representative of the recreational vehicle on a display screen of a smart device ***(See at least fig 5-6, Col 4, lines 31-34, "The user interface control can include an icon representing the UAV and the additional information includes a three-dimensional (3D) depiction of the UAV's spatial orientation relative to the remote terminal."), (Col 10, lines 15-16, "The remote display can be part of a mobile computing device such as a smartphone or a tablet")***; simultaneously displaying a plurality of adjustment indicators on the display screen, the adjustment indicators related to the height adjustment amounts needed to level the recreational vehicle ***(See at least fig 5-6, Col 3, lines 10-17, "The icon 10 display region can include a UAV pitch/roll indicator used to indicate a pitch***

***orientation or a roll orientation of the UAV. The UAV pitch/roll indicator can be used to indicate both a pitch orientation and a roll orientation of the UAV. The UAV 15 pitch/roll indicator can comprise a graphical horizon line indicator")***, each adjustment indicator showing an amount of adjustment in height needed at a respective section of the recreational vehicle to level the recreational vehicle in at least one of the pitch direction and roll direction ***(See at least fig 5-6, Col 33, lines 28-38, "a leveled or horizontal line 626 parallel to the horizon 627 can indicate zero roll rotation of the UAV. A counter clockwise tilt of the line 626 relative to the horizon 627 (i.e., the leftmost point of the line is lower than the rightmost end of the line) can indicate a corresponding counter clockwise roll of the UAY (from the UAV's perspective). Likewise, a clockwise tilt of the line 626 relative to the horizon 627 (i.e., the leftmost end of the line is higher than the rightmost end of the line) can indicate a corresponding clockwise roll of the UAY (from the UAV's perspective).")***; and updating the display screen, essentially in real time, as the height adjustment amounts are changed ***(Col 16, lines 3-5, "the displayed information may be updated in real-time or nearly real-time reflected updated received information.")***.

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify the system for leveling a vehicle of Thorpe and include at least one image representative of the recreational vehicle on a display screen of a smart device, simultaneously displaying a plurality of adjustment indicators on the display screen, the adjustment indicators related to the height adjustment amounts needed to level the recreational vehicle, each adjustment indicator showing an amount of adjustment in height needed at a respective section of the recreational vehicle to level the recreational vehicle in at least one of the pitch direction and roll direction; and updating the display screen,

essentially in real time, as the height adjustment amounts are changed as taught by Zhong because it would allow the display device to generate multiple indicators where the yaw orientation of UAV can be illustrated by the orientation of the UA V icon, the pitch and roll orientation of the UAV can be illustrated by the level indicator in the substantially circular region, the yaw and roll orientation of payload can be illustrated by the FO V indicator, and the roll angle indicator respectively (***Zhong, Col 34, lines 13-19***).

**Regarding claim 14**, Thorpe discloses the method according to claim 9, wherein the step of sensing the inclination of the recreational vehicle in both a pitch direction and a roll direction is performed by a corresponding sensor device, and wherein the smart device and the corresponding sensor device communicate with each other through a wireless connection, the method further comprising storing a serial number of the corresponding sensor device in the smart device so that the smart device communicates with the corresponding sensor device ***(See at least ¶ 0011, via the leveling system has a level unit which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle), (the examiner notes that pairing between devices is a known feature in the art and it would be obvious to implement this feature for communication between devices).***

**In regards of claim 16**, Thorpe discloses a non-transitory computer readable medium comprising computer executable instructions that when executed by a processor of a smart device, control the smart device to perform steps comprising:

receiving a pitch angle measurement and a roll angle measurement of a vehicle when the vehicle is at rest from a sensor device secured to the vehicle ***(See at least ¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition… the level sensing means is a dual-axis accelerometer that is configured to determine the tilt of the recreational vehicle in both the front-to-back and side-to-side directions), (¶ 0038, via Level sensing means 38 comprises one or more tilt sensors that are configured to detect the amount of pitch and roll of recreational vehicle), (¶ 0038, via In one configuration, level sensing means 38 comprises two separate tilt sensors, one positioned in the front/back direction for determining the pitch and one positioned in the left/right direction for determining the roll)***, calculating in both the pitch direction and the roll direction for determining the height needed to adjust the vehicle to level the vehicle in both the pitch direction and the roll direction ***(See at least ¶ 34, via In other embodiments, the vehicle sensors 206, 208 may comprise one or more of an accelerometer, a gyroscope, a liquid capacitive device, an electrolytic level device, a gas bubble in liquid device, a pendulum device, and the like), (¶ 29, via a vehicle 104 may be leveled by a leveling system 102 based on a first signal 202 representing a lateral force (i.e., tilt, roll) acting on the vehicle 104 and a second signal 204 representing a longitudinal force (i.e., pitch) acting on the vehicle 104. The first 202 and second 204 signals may be sent by one or more vehicle sensors (206, 208) associated with the vehicle 104, and received by a processing or control portion 210 of the leveling system), (¶ 36, via level unit 12 is placed on a flat surface inside recreational vehicle 16), (¶ 38, via level sensing means 38 is a dual-axis accelerometer, such as the model number LIS2L02AS4 low-power two-axis linear accelerometer available from ST Microelectronics, that is configured to***

***detect tilting in both the front/back and left/right directions so as to determine the attitude of recreational vehicle 16 relative to a calibrated reference position (i.e., the level condition 20). The level sensing means 38 includes an integrated circuit interface that takes the information from the sensing element of sensing means 28 to deliver an analog signal for conversion and then use by control unit 14);*** and displaying, a plurality of adjustment indicators based on the adjustment in height ***(¶ 0040, via on FIG. 9, is used to switch control unit 14 between its various display and function modes, such as showing the pitch or roll adjustments needed to obtain level condition), (¶ 0038, via controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator).***

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35, "Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify displaying, on the device, the adjustment in height to the frame of the vehicle to obtain a level position of the vehicle in the pitch direction and the roll direction of Thorpe and include a smart device as taught by Luk because it would

allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

Thorpe fails to explicitly disclose on a display screen of the smart device, at least one image representative of the vehicle; displaying, on the display screen of the smart device, a plurality of adjustment indicators based on the adjustment in height to the vehicle to obtain a level position of the vehicle in the pitch direction and the roll direction, each adjustment indicator showing an amount of adjustment in height needed at a respective section of the vehicle to level the vehicle in at least one of the pitch direction and roll direction; and updating the display screen of the smart device, essentially in real time, as the height needed to adjust the vehicle to level the vehicle changes.

However, Zhong teaches on a display screen of the smart device, at least one image representative of the vehicle ***(See at least fig 5-6, Col 4, lines 31-34, "The user interface control can include an icon representing the UAV and the additional information includes a three-dimensional (3D) depiction of the UAV's spatial orientation relative to the remote terminal."), (Col 10, lines 15-16, "The remote display can be part of a mobile computing device such as a smartphone or a tablet")***; displaying, on the display screen of the smart device, a plurality of adjustment indicators based on the adjustment in height to the vehicle to obtain a level position of the vehicle in the pitch direction and the roll direction ***(See at least fig 5-6, Col 3, lines 10-17, "The icon 10 display region can include a UAV pitch/roll indicator used to indicate a pitch orientation or a roll orientation of the UAV. The UAV pitch/roll indicator can be used to indicate both a pitch orientation and a roll orientation of the UAV. The UAV 15 pitch/roll indicator can comprise a graphical horizon line indicator")***, each adjustment indicator showing an amount of adjustment in height needed at a respective section of the vehicle to level the

vehicle in at least one of the pitch direction and roll direction ***(See at least fig 5-6, Col 33, lines 28-38, "a leveled or horizontal line 626 parallel to the horizon 627 can indicate zero roll rotation of the UAV. A counter clockwise tilt of the line 626 relative to the horizon 627 (i.e., the leftmost point of the line is lower than the rightmost end of the line) can indicate a corresponding counter clockwise roll of the UAY (from the UAV's perspective). Likewise, a clockwise tilt of the line 626 relative to the horizon 627 (i.e., the leftmost end of the line is higher than the rightmost end of the line) can indicate a corresponding clockwise roll of the UAY (from the UAV's perspective).")***; and updating the display screen of the smart device, essentially in real time, as the height needed to adjust the vehicle to level the vehicle changes ***(Col 16, lines 3-5, "the displayed information may be updated in real-time or nearly real-time reflected updated received information.")***.

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify the system for leveling a vehicle of Thorpe and include on a display screen of the smart device, at least one image representative of the vehicle; displaying, on the display screen of the smart device, a plurality of adjustment indicators based on the adjustment in height to the vehicle to obtain a level position of the vehicle in the pitch direction and the roll direction, each adjustment indicator showing an amount of adjustment in height needed at a respective section of the vehicle to level the vehicle in at least one of the pitch direction and roll direction; and updating the display screen of the smart device, essentially in real time, as the height needed to adjust the vehicle to level the vehicle changes as taught by Zhong because it would allow the display device to generate multiple indicators where the yaw orientation of UAV can be illustrated by the orientation of the UA V icon, the pitch and roll orientation of the UAV can be illustrated by the level indicator in the substantially circular

region, the yaw and roll orientation of payload can be illustrated by the FO V indicator, and the roll angle indicator respectively (***Zhong, Col 34, lines 13-19***).

**Regarding claim 18**, Thorpe discloses the non-transitory computer readable medium according to claim 16, wherein the step of displaying the adjustment in height comprises the step of displaying, on the display screen of the device, the needed adjustment in height of at least one portion of a frame of the vehicle at or near at least one wheel position of the vehicle ***(¶ 0012, via The control unit also has a display panel for displaying the pitch and roll information received from the level unit and one or more operator accessible control buttons for activating and operating the leveling system.), (See at least ¶ 5, via that are configured to allow the user to drive the vehicle's wheel(s) up on one or more blocks).***

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35, "Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify the step of displaying the adjustment in height comprises the step of displaying, on the display screen of the device, the needed

adjustment in height of at least one portion of a frame of the vehicle at or near at least one wheel position of the vehicle of Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

**Regarding claim 19**, Thorpe discloses the system according to claim 1, wherein the adjustment indicators show the adjustments in height to the at least one part of a frame of the vehicle located at or near at least one of four wheels of the vehicle ***(¶ 0040, via on FIG. 9, is used to switch control unit 14 between its various display and function modes, such as showing the pitch or roll adjustments needed to obtain level condition), (¶ 0038, via controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***.

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35, "Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify wherein the adjustment indicators show

the adjustments in height to the at least one part of a frame of the vehicle located at or near at least one of four wheels of the vehicle of Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

**Regarding claim 20**, Thorpe discloses the system according to claim 1, wherein the device is further configured to display on the display screen near-real-time height adjustments remaining that are needed to level the vehicle when the vehicle is in the process of being leveled ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***.

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35, "Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to***

***perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify wherein the device is further configured to display on the display screen near-real-time height adjustments remaining that are needed to level the vehicle when the vehicle is in the process of being leveled of Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

**Regarding claim 21**, Thorpe discloses the system according to claim 19, wherein the device is configured to calculate a first adjustment in height to level the vehicle in the pitch direction ***(¶ 11, "a level unit which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle")*** and a second adjustment in height to level the vehicle in the roll direction ***(¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition…The control unit also has a display panel for displaying the pitch and roll information received from the level unit and one or more operator accessible control buttons for activating and operating the leveling system)*** and wherein the device is further configured to calculate the adjustments in height to the at least one part of the frame of the vehicle by adding the first adjustment with the second adjustment ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion***

***devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator).***

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35, "Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify wherein the device is further configured to calculate the adjustments in height to each of the four parts of the frame of the vehicle by adding the first adjustment with the second adjustment of Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

**Regarding claim 22**, Thorpe discloses the system according to claim 21, wherein: the at least one part of the frame includes a first part located at or near a front driver-side wheel, a second part located at or near a back driver-side wheel, a third part located at or near a front passenger-side wheel, and a fourth part located at or near a back passenger-side wheel ***(See at least ¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition… the level sensing means is a dual-axis accelerometer that is configured to determine the tilt of the recreational vehicle in both the front-to-back and side-to-side directions)***; an adjustment in height, if any, to the first part includes combining a rearward pitch adjustment of the first adjustment with a right roll adjustment of the second adjustment ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***; an adjustment in height, if any, to the second part includes combining a forward pitch adjustment of the first adjustment with the right roll adjustment of the second adjustment ***(¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition…The control unit also has a display panel for displaying the pitch and roll information received from the level unit and one or more operator accessible control buttons for activating and operating the leveling system)***; an

adjustment in height, if any, to the third part includes combining the rearward pitch adjustment of the first adjustment with a left roll adjustment of the second adjustment ***(¶ 11, "a level unit which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle")***; and an adjustment in height, if any, to the fourth part includes combining the forward pitch adjustment of the first adjustment with the left roll adjustment of the second adjustment ***(¶ 0038, via In one configuration, level sensing means 38 comprises two separate tilt sensors, one positioned in the front/back direction for determining the pitch and one positioned in the left/right direction for determining the roll)***.

**Regarding claim 24**, Thorpe discloses the method according to claim 9, further comprising: calculating a first adjustment in height to level the vehicle in the pitch direction ***(¶ 0040, via on FIG. 9, is used to switch control unit 14 between its various display and function modes, such as showing the pitch or roll adjustments needed to obtain level condition), (¶ 0038, via controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***; calculating a second adjustment in height to level the vehicle in the roll direction ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to***

***control unit 14 for display to the operator)***; the four parts of the frame include a first part located at or near a front driver-side wheel, a second part located at or near a back driver-side wheel, a third part located at or near a front passenger-side wheel, and a fourth part located at or near a back passenger-side wheel ***(¶ 0036, via Proper placement of level unit 12 is necessary for the operation of level unit 12 to determine the amount of pitch (front/back angle) and roll (left/right) for analyzing the attitude of recreational vehicle 16 relative to a calibrated reference position or predetermined attitude at level condition 20)***; calculating any needed adjustment in height to a first part of the frame located at or near a front driver-side wheel by combining a rearward pitch adjustment of the first adjustment and a right roll adjustment of the second adjustment ***(¶ 8, via The foregoing patents are representative of leveling systems that require manual, independent determination of the amount of height adjustment needed to place the vehicle in the level condition)***; calculating any needed adjustment in height to a second part of the frame located at or near a rear driver-side wheel by combining a forward pitch adjustment of the first adjustment and the right roll adjustment of the second adjustment ***(¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition)***; calculating any needed adjustment in height to a third part of the frame located at or near a front passenger-side wheel by combining the rearward pitch adjustment of the first adjustment and a left roll adjustment of the second adjustment ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing***

***into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***; and calculating any needed adjustment in height to a fourth part of the frame located at or near a rear passenger-side wheel by combining the forward pitch adjustment of the first adjustment and the left roll adjustment of the second adjustment ***(See at least ¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition… the level sensing means is a dual-axis accelerometer that is configured to determine the tilt of the recreational vehicle in both the front-to-back and side-to-side directions)***.

**Regarding claim 25**, Thorpe discloses the method according to claim 9, further comprising the step of displaying on the display screen near-real-time height adjustments remaining that are needed to level the vehicle when the vehicle is in the process of being leveled ***(¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition…The control unit also has a display panel for displaying the pitch and roll information received from the level unit and one or more operator accessible control buttons for activating and operating the leveling system)***.

**Regarding claim 27**, Thorpe discloses the non-transitory computer readable medium according to claim 16, wherein the computer executable instructions, when executed, further control the smart device to: calculate a first adjustment in height to level the vehicle in the pitch direction ***(¶ 0040, via on FIG. 9, is used to switch control unit 14 between its various display and function***

***modes, such as showing the pitch or roll adjustments needed to obtain level condition), (¶ 0038, via controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)*** and a second adjustment in height to level the vehicle in the roll direction ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***; and calculate adjustments in height to each of at least one part of a frame of the vehicle by combining the first adjustment with the second adjustment ***(See at least ¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition… the level sensing means is a dual-axis accelerometer that is configured to determine the tilt of the recreational vehicle in both the front-to-back and side-to-side directions)***.

**Regarding claim 28**, Thorpe discloses the non-transitory computer readable medium according to claim 27, wherein the at least one part of the frame includes a first part located at or near a front driver-side wheel, a second part located at or near a back driver-side wheel, a third part located at or near a front passenger-side wheel, and a fourth part located at or near a back passenger-side wheel ***(¶ 0040, via on FIG. 9, is used to switch control unit 14 between its various display and function modes, such as showing the pitch or roll adjustments needed to***

***obtain level condition), (¶ 0038, via controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator)***, and wherein the computer executable instructions, when executed, further control the smart device to: calculate any needed adjustment in height to the first part by combining a rearward pitch adjustment of the first adjustment with a right roll adjustment of the second adjustment ***(¶ 0036, via Proper placement of level unit 12 is necessary for the operation of level unit 12 to determine the amount of pitch (front/back angle) and roll (left/right) for analyzing the attitude of recreational vehicle 16 relative to a calibrated reference position or predetermined attitude at level condition 20)***; calculate any needed adjustment in height to the second part by combining a forward pitch adjustment of the first adjustment with the right roll adjustment of the second adjustment; calculate any needed adjustment in height to the third part by combining the rearward pitch adjustment of the first adjustment with a left roll adjustment of the second adjustment ***(See at least ¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition… the level sensing means is a dual-axis accelerometer that is configured to determine the tilt of the recreational vehicle in both the front-to-back and side-to-side directions)***; and calculate any needed adjustment in height to the fourth part by combining the forward pitch adjustment of the first adjustment with the left roll adjustment of the second adjustment ***(¶ 0036, via Proper placement of level unit 12 is necessary for the operation of level unit 12 to determine the amount of pitch (front/back angle) and roll (left/right) for analyzing the attitude of recreational vehicle 16 relative to a calibrated reference position or predetermined attitude at level condition)***.

**Regarding claim 29**, Thorpe discloses the non-transitory computer readable medium according to claim 16, wherein the computer executable instructions, when executed, further control the smart device to display, in near real time, height adjustments that are remaining for leveling the vehicle during a vehicle leveling process ***(¶ 0038, via the output from level sensing means 38 goes to one or more analog conversion devices, such as the operation amplifiers 48a, 48b, 48c and 48d, that convert the analog signal to a linear value that is used by controller 36 to determine the pitch and roll level position relative to the common reference 50. This data is then wirelessly transmitted to control unit 14 for processing into operator- useable information. Alternatively, controller 36 or level unit 12 can process the data and transmit the final tilt adjustment data to control unit 14 for display to the operator).***

**Regarding claim 31**, Thorpe discloses the system according to claim 1, wherein the vehicle includes four wheels, and wherein at least one of the sensor device and device is configured to determine, based on the height needed to level the vehicle in both the pitch direction and the roll direction, adjustments in height to at least one of four parts of a frame of the vehicle, the four parts of the frame located at or near the four wheels of the vehicle ***(Claim 1, "control unit having a display panel for displaying the pitch and roll information of said recreational vehicle and one or more control buttons for activating and/or operating said leveling system")***, ***(¶ 11, "a level unit which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle"), (¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling***

***mechanism to place the recreational vehicle in its level condition…The control unit also has a display panel for displaying the pitch and roll information received from the level unit and one or more operator accessible control buttons for activating and operating the leveling system).***

Thorpe fails to explicitly disclose a smart device.

However, Luk teaches a smart device ***(see at least ¶ 29, "Referring to FIG. 1, a horizontal outline of a vehicle (1) is presented with on overlay of a portable device (2) in a form of a smart phone which contains a built-in tri-axial accelerometer") (See at least ¶ 35, "Such portable device (2) may be further equipped with a commercially available software application program (an App) that can activate the device (2) automatically by a remotely transmitted command signal), (Thorpe discloses the computer control code or program to perform leveling operation. A person of ordinary skill in the art would have understood that the concept of a program with a user-interface is an application).***

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify wherein the vehicle includes four wheels, and wherein at least one of the sensor device and device is configured to determine, based on the height needed to level the vehicle in both the pitch direction and the roll direction, adjustments in height to at least one of four parts of a frame of the vehicle, the four parts of the frame located at or near the four wheels of the vehicle of Thorpe and include a smart device as taught by Luk because it would allow the system to activate the smart device automatically by a remotely transmitted command signal (Luk ¶ 35).

**Regarding claim 32**, Thorpe discloses the system according to claim 1, wherein the information sensed by the sensor device regarding the inclination of the vehicle in both the pitch direction

and the roll direction is processed to determine an amount of adjustment in height to a rear section or front section of the vehicle needed to level the vehicle in the pitch direction and to determine an amount of adjustment in height to a first side section or a second side section of the vehicle needed to level the vehicle in the roll direction ***(Claim 1, "control unit having a display panel for displaying the pitch and roll information of said recreational vehicle and one or more control buttons for activating and/or operating said leveling system")***, ***(¶ 11, "a level unit which determines how level the vehicle is and wirelessly transmits that information to a control unit which visually indicates to the operator the amount the recreational vehicle is out of level in degrees and the amount needed to raise a side or end of the vehicle in order to level the vehicle"), (¶ 12, via The level sensing means is configured to determine the pitch and the roll of the recreational vehicle so the user can operate the leveling mechanism to place the recreational vehicle in its level condition…The control unit also has a display panel for displaying the pitch and roll information received from the level unit and one or more operator accessible control buttons for activating and operating the leveling system)***.

11. Claims **23, 26**, and **30** are rejected under 35 U.S.C 103 as being unpatentable over Thorpe in view of Luk and Zhong , further in view of Tanenhaus et al, US 8,239,162, hereinafter referred to as Tanenhaus respectively.

**Regarding claim 23**, Thorpe discloses the system according to claim 1.

Thorpe fails to explicitly disclose further comprising a temperature calibration lookup table, wherein the smart device is configured to correct the height adjustment amounts based on current temperature readings and information from the temperature calibration lookup table.

However, Tanenhaus teaches a temperature calibration lookup table, wherein the smart device is configured to correct the height adjustment amounts based on current temperature readings and information from the temperature calibration lookup table ***(See at least Column 11, lines 4-8, "Temperature sensors 121 in a particular embodiment are part of each of the gyros 104 and accelerometer 107. The temperature sensors 121 sense temperature and compensate for changes outside the normal gyro and accelerometer ranges"), (See at least Column 15, lines 36-39, "the measurement system to provide a correction signal for correction of gyro bias errors, the accelerometer errors, and the temperature derived from an internal temperature sensor to measure and correct for temperature extremes")***.

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify a digital accelerometer that permits calculation in both the pitch direction and roll direction of Thorpe and include a temperature calibration lookup table, wherein the smart device is configured to correct the height adjustment amounts based on current temperature readings and information from the temperature calibration lookup table as taught by Tanenhaus because it would allow the temperature sensors sense temperature and compensate for changes outside the normal gyro and accelerometer ranges ***(See Tanenhaus at least Column 11, lines 6-8).***

**Regarding claim 26**, Thorpe discloses the method according to claim 9.

Thorpe fails to explicitly disclose further comprising the step of correcting the height adjustment amounts based on current temperature readings and information from a temperature calibration lookup table.

However, Tanenhaus teaches further comprising the step of correcting the height adjustment amounts based on current temperature readings and information from a temperature calibration lookup table ***(See at least Column 11, lines 4-8, "Temperature sensors 121 in a particular embodiment are part of each of the gyros 104 and accelerometer 107. The temperature sensors 121 sense temperature and compensate for changes outside the normal gyro and accelerometer ranges"), (See at least Column 15, lines 36-39, "the measurement system to provide a correction signal for correction of gyro bias errors, the accelerometer errors, and the temperature derived from an internal temperature sensor to measure and correct for temperature extremes")***.

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify a digital accelerometer that permits calculation in both the pitch direction and roll direction of Thorpe and include further comprising the step of correcting the height adjustment amounts based on current temperature readings and information from a temperature calibration lookup table as taught by Tanenhaus because it would allow the temperature sensors sense temperature and compensate for changes outside the normal gyro and accelerometer ranges ***(See Tanenhaus at least Column 11, lines 6-8).***

**Regarding claim 30**, Thorpe discloses non-transitory computer readable medium according to claim 16.

Thorpe fails to explicitly disclose wherein the computer executable instructions, when executed, further control the smart device to correct the adjustments in height based on current temperature readings and information from a temperature calibration lookup table.

However, Tanenhaus teaches wherein the computer executable instructions, when executed, further control the smart device to correct the adjustments in height based on current temperature readings and information from a temperature calibration lookup table ***(See at least Column 11, lines 4-8, "Temperature sensors 121 in a particular embodiment are part of each of the gyros 104 and accelerometer 107. The temperature sensors 121 sense temperature and compensate for changes outside the normal gyro and accelerometer ranges"), (See at least Column 15, lines 36-39, "the measurement system to provide a correction signal for correction of gyro bias errors, the accelerometer errors, and the temperature derived from an internal temperature sensor to measure and correct for temperature extremes")***.

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify a digital accelerometer that permits calculation in both the pitch direction and roll direction of Thorpe and include wherein the computer executable instructions, when executed, further control the smart device to correct the adjustments in height based on current temperature readings and information from a temperature calibration lookup table as taught by Tanenhaus because it would allow the temperature sensors sense temperature and compensate for changes outside the normal gyro and accelerometer ranges ***(See Tanenhaus at least Column 11, lines 6-8).***

## *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **LUIS MARTINEZ** whose email is luis.martinezborrero@uspto.gov and telephone number is (571)272-4577. The examiner can normally be reached on Monday-Friday 8:30AM-5:00PM EST.

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, **HUNTER LONSBERRY** can be reached on (571) 272-7298. 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 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.

/L.A.M/
Examiner, Art Unit 3665

/HUNTER B LONSBERRY/
Supervisory Patent Examiner, Art Unit 3665

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| | Examiner | Art Unit |
| | LUIS A MARTINEZ BORRERO | 3665 |

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**CLAIMS**

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

| CLAIM | | DATE | | | | | | | | |
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| Final | Original | 12/07/2018 | 06/11/2019 | 11/12/2019 | 04/17/2020 | | | | | |
| | 1 | ✓ | ✓ | ✓ | ✓ | | | | | |
| | 2 | ✓ | - | - | - | | | | | |
| | 3 | ✓ | - | - | - | | | | | |
| | 4 | ✓ | ✓ | - | - | | | | | |
| | 5 | ✓ | ✓ | - | - | | | | | |
| | 6 | ✓ | ✓ | - | - | | | | | |
| | 7 | ✓ | ✓ | ✓ | ✓ | | | | | |
| | 8 | ✓ | ✓ | - | - | | | | | |
| | 9 | ✓ | ✓ | ✓ | ✓ | | | | | |
| | 10 | ✓ | - | - | - | | | | | |
| | 11 | ✓ | - | - | - | | | | | |
| | 12 | ✓ | ✓ | - | - | | | | | |
| | 13 | ✓ | ✓ | - | - | | | | | |
| | 14 | ✓ | ✓ | ✓ | ✓ | | | | | |
| | 15 | ✓ | ✓ | - | - | | | | | |
| | 16 | ✓ | ✓ | ✓ | ✓ | | | | | |
| | 17 | ✓ | ✓ | - | - | | | | | |
| | 18 | ✓ | ✓ | ✓ | ✓ | | | | | |
| | 19 | | | ✓ | ✓ | | | | | |
| | 20 | | | ✓ | ✓ | | | | | |
| | 21 | | | ✓ | ✓ | | | | | |
| | 22 | | | ✓ | ✓ | | | | | |
| | 23 | | | ✓ | ✓ | | | | | |
| | 24 | | | ✓ | ✓ | | | | | |
| | 25 | | | ✓ | ✓ | | | | | |
| | 26 | | | ✓ | ✓ | | | | | |
| | 27 | | | ✓ | ✓ | | | | | |
| | 28 | | | ✓ | ✓ | | | | | |
| | 29 | | | ✓ | ✓ | | | | | |
| | 30 | | | ✓ | ✓ | | | | | |
| | 31 | | | | ✓ | | | | | |
| | 32 | | | | ✓ | | | | | |

| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/619,261 | Leonard, Charles A. |
| | Examiner | Art Unit |
| | LUIS A MARTINEZ BORRERO | 3665 |

| CPC - Searched* | | |
|---|---|---|
| **Symbol** | **Date** | **Examiner** |
| G05D1/08, 1/0891, 1/0221, 1/0088, 1/0016, | 12/07/2018 | LAM |
| B60T17/22, 8/171, 2201/04, 7/22, 8/32, | 12/07/2018 | LAM |
| G05D1/0891, 1/0016, | 06/11/2019 | LAM |
| B62D1/00, | 06/11/2019 | LAM |
| G05D 1/0891, 1/0016, 1/0011, | 11/12/2019 | LAM |
| B62D37/00, 55/075, 57/02, | 11/12/2019 | LAM |
| G05D1/0891, 1/0088, 2201/0213, 1/0061, | 04/17/2020 | LAM |
| B60W2420/42, 2520/14, 30/02, 10/20, | 04/17/2020 | LAM |
| B60T2201/04, 7/12, 8/171, 8/1761, | 04/17/2020 | LAM |

| CPC Combination Sets - Searched* | | |
|---|---|---|
| **Symbol** | **Date** | **Examiner** |
| | | |

| US Classification - Searched* | | | |
|---|---|---|---|
| **Class** | **Subclass** | **Date** | **Examiner** |
| | | | |

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

| | |
|---|---|
| /HUNTER B LONSBERRY/<br>Supervisory Patent Examiner, Art Unit 3665 | /L.A.M/<br>Examiner, Art Unit 3665 |



ETN1003
439/642

| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/619,261 | Leonard, Charles A. |
| | **Examiner** | **Art Unit** |
| | LUIS A MARTINEZ BORRERO | 3665 |

| Search Notes | | |
|---|---|---|
| **Search Notes** | **Date** | **Examiner** |
| East Search | 12/07/2018 | LAM |
| Google Patent Search | 12/07/2018 | LAM |
| East Search | 06/11/2019 | LAM |
| East Search | 11/12/2019 | LAM |
| East Search | 04/17/2020 | LAM |
| Consulted patentability with primary Frederick Brushaber | 04/17/2020 | LAM |

| Interference Search | | | |
|---|---|---|---|
| **US Class/CPC Symbol** | **US Subclass/CPC Group** | **Date** | **Examiner** |
| | | | |

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|---|---|
| /HUNTER B LONSBERRY/<br>Supervisory Patent Examiner, Art Unit 3665 | /L.A.M/<br>Examiner, Art Unit 3665 |


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440/642

**EAST Search History**

**EAST Search History (Prior Art)**

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| S1 | 1584 | ((vehicle or car or automobile) near4(level$4)) and ((sens$4 or detect$3)near5 (inclinat$4)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 22:52 |
| S2 | 486 | S1 AND ( (G05D1/0088 OR G05D2201/0213 OR G05D1/0061 OR G05D1/0223 OR G05D1/0257 OR G05D1/0016 OR G05D1/0891 OR G05D1/0011 OR G05D1/0055 OR G05D1/0094 OR G05D1/02 OR G05D1/0214 OR G05D1/0221 OR G05D1/0274 OR G05D1/0278 OR G05D1/12 OR G05D2201/0201 OR G05D2201/0208 OR G05D2201/0215 OR B60T2201/04 OR B60T7/12 OR B60T8/171 OR B60T13/662 OR B60T17/22 OR B60T2201/022 OR B60T2201/06 OR B60T2260/06 OR B60T7/122 OR B60T7/22 OR B60T8/245 OR B60T1/062 OR B60T2210/36 OR B60T2220/04 OR B60T7/042 OR B60T8/32 OR B60T8/3205 OR B60T13/74 OR B60T13/741 OR B60T1/005 OR B60T2201/09 OR B60T2201/10 OR B60T2210/14 OR B60T2210/16 OR B60T2230/03 OR B60T2230/04 OR B60T2270/89 OR B60T7/085 OR B60T7/20 OR B60T8/17 OR B60T8/1706 OR B60T8/172 OR B60T8/175 OR B60T8/17552 OR B60T8/17616 OR B60T8/3215 OR B60T8/4827 OR B60T8/52).CPC. OR (1/1 OR 348/148 OR 600/479 OR 701/41).CCLS. OR (G05D1/00 OR G05D1/02 OR G05D1/08 OR G05D1/12 OR B60T8/32 OR B60T7/12 OR B60T8/24 OR B60T13/66 OR | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 22:53 |

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|---|---|---|---|---|---|---|
| | | B60T8/171 OR B60T13/74 OR B60T17/22 OR B60T1/00 OR B60T7/20 OR B60T8/172 OR B60T8/175 OR B60T8/1755 OR B60T8/1761 OR B60T8/48).IPCR. ) | | | | |
| S3 | 94 | S2 and inclinat$3 and sensor and pitch and roll | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 22:54 |
| S4 | 4 | ((vehicle or car or automobile) near4(level$4)) with ((sens$4 or detect$3)near5 (inclinat$4)) with (accelerometer or gyroscope) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 22:55 |
| S5 | 11 | ("20070180719" \| "20080142768" \| "3657695" \| "4547972" \| "4760649" \| "6037874" \| "6397133" \| "7025361" \| "7743520" \| "7786883" \| "8083015").PN. OR ("9421907").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 22:56 |
| S6 | 22 | ("3739364" \| "4085375").PN. OR ("4547972").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 22:59 |
| S7 | 17 | ("3861052" \| "3916531" \| "4182046" \| "4492029" \| "4584778" \| "4658508").PN. OR ("4760649").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 22:59 |
| S8 | 43 | ("4912662" \| "5083383" \| "5168632" \| "5259118" \| "5313713" \| "5410532" \| "5479715" \| "5488779" \| "5680208" \| "5689330").PN. OR ("6037874").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 22:59 |
| S9 | 14 | ("5176391" \| "5890721" \| "5915700" \| "6176495" \| "6351696" \| "6584385").PN. OR ("7025361").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 22:59 |
| S10 | 25 | ("20060064888" \| "3233235" \| "3324564" \| "3657551" \| "4154000" \| "4467527" \| "4625423" \| "4658508" \| "5136784" \| "5784794" \| "6526668" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 23:00 |

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|---|---|---|---|---|---|---|
| | | "6836972" \| "6981333").PN. OR ("7743520").URPN. | | | | |
| S11 | 33 | ("20060100979" \| "20070180719" \| "20070245579" \| "20080142768" \| "2155876" \| "3181203" \| "3258884" \| "3260564" \| "3417518" \| "3866365" \| "4232488" \| "4568096" \| "4572527" \| "4743037" \| "4746133" \| "4784400" \| "5078442" \| "5136784" \| "5159989" \| "5176391" \| "5188379" \| "5676385" \| "5806196" \| "6176495" \| "6526668" \| "7025361").PN. OR ("7786883").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 23:00 |
| S12 | 0 | ((vehicle or car or automobile) near4(level$4)) with ((sens$4 or detect$3)near5 (inclinat$4)) with (accelerometer or gyroscope) with ((smart adj device) or d evice or phone or cell or cellphone) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:02 |
| S13 | 33690 | ((vehicle or car or automobile) near4 (level$4)) and ((smart adj device) or phone or cell or cellphone or mobile) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:05 |
| S14 | 10900 | S13 AND ( (G05D1/0088 OR G05D1/0891).CPC. OR (1/1).CCLS. OR (G05D1/02 OR G05D1/00 OR G05D1/08).IPCR. ) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:06 |
| S15 | 799 | S14 and sensor and pitch and roll | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:07 |

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|---|---|---|---|---|---|---|
| S16 | 457 | S15 and (( sens$3 or determin$3 or detect$3) near5 (inclination or orientation)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:08 |
| S17 | 149 | S16 and accelerometer and gyroscope | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:09 |
| S18 | 47 | S17 and ((adjust$3) near5 (level$3 or inclination or tilt)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:10 |
| S19 | 2615 | (pitch near3 roll) with level$3 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:12 |
| S20 | 349 | S19 and (axis near3 accelerometer) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:12 |
| S21 | 204 | S20 and ((adjust$3 or alter$3 or chang$3 or modif$4) near3 (level$3 or orientation or inclination)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:13 |

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|---|---|---|---|---|---|---|
| S22 | 18 | ((pitch near3 roll) near6 (axis near3 accelerometer)) with (vehicle car or automobile) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:14 |
| S23 | 0 | (tri-axial) with accelerometer with 1evel$3 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:16 |
| S24 | 52 | (tri-axial) with accelerometer with level$3 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:17 |
| S25 | 124 | (tri-axial) with accelerometer with (temperature adj sensor) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:18 |
| S26 | 57 | ((tri-axial) near3 accelerometer) near6(temperature adj sensor) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:18 |
| S27 | 14 | "4935883" | USPAT | OR | OFF | 2018/12/06 23:21 |
| S28 | 1 | "20120197587" | US-PGPUB | OR | OFF | 2018/12/06 23:22 |
| S29 | 1 | "20120208520" | US-PGPUB | OR | OFF | 2018/12/06 23:23 |

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|---|---|---|---|---|---|---|
| S30 | 410 | ((("LEONARD") near3 ("Charles"))).INV. | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT | OR | OFF | 2018/12/06 23:26 |
| S31 | 1718 | G05D1/0891.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:29 |
| S32 | 657 | B62D1/00.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:29 |
| S33 | 3389 | G05D1/0016.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:29 |
| S34 | 11555 | ((temperature adj sensor) NEAR5 (GYRO OR ACCELEROMETER)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:31 |
| S35 | 1 | S31 and S34 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:31 |
| S36 | 2 | S32 and S34 | US-PGPUB; USPAT; USOCR; | OR | ON | 2019/06/11 23:31 |

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|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S37 | 16 | S33 and S34 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:31 |
| S38 | 154 | ("20080059068" \| "20090265193" \| "20100012776" \| "20100215212" \| "20100228418" \| "20100268409" \| "20100286859" \| "20110270470" \| "20120170797" \| "20120197461" \| "20120250010" \| "20120271461" \| "20130206915" \| "20130216089" \| "20130238168" \| "20140061376" \| "20140259549" \| "20140267627" \| "20140277842" \| "20140316614" \| "20140316616" \| "20140324405" \| "20140336928" \| "20150325064" \| "20150343644" \| "20150344136" \| "20150377405" \| "20160004795" \| "20160176542" \| "4818990" \| "5575438" \| "7400384" \| "7496226" \| "7872794" \| "7929125" \| "8060270" \| "8207484" \| "8212995" \| "8346578" \| "8818572" \| "8830485" \| "8872818" \| "8874283" \| "8896819" \| "8997362" \| "9009000" \| "9129355" \| "9152863" \| "9162753" \| "9256225" \| "9256994" \| "9273981" \| "9310221" \| "9329599" \| "9340283" \| "9403593" \| "9406237").PN. OR ("2012/0194551" \| "9609288").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/06/11 23:32 |
| S39 | 1 | ("9008860").PN. OR ("9483050").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/06/11 23:32 |
| S40 | 1 | ("20160314621").PN. OR ("9760089").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/06/11 23:32 |

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|---|---|---|---|---|---|---|
| S41 | 1 | "20120197587" | US-PGPUB | OR | OFF | 2019/06/11 23:33 |
| S42 | 18 | "8239162" | US-PGPUB; USPAT | OR | OFF | 2019/06/11 23:34 |
| S43 | 1 | "20080142768" | US-PGPUB; USPAT | OR | OFF | 2019/06/11 23:35 |
| S44 | 412 | ((("LEONARD") near3 ("Charles"))).INV. | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT | OR | OFF | 2019/06/11 23:35 |
| S45 | 2 | S44 and S31 | US-PGPUB; USPAT | OR | OFF | 2019/06/11 23:35 |
| S46 | 650123 | G05D 1/0016.cpc | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/11 21:20 |
| S47 | 650123 | G05D 1/0891.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/11 21:20 |
| S48 | 447 | ((vehicle or car or automobile) near4 (level$4)) and ((sens$4 or detect$3) near5 (inclinat$4)) and (accelerometer or gyroscope) and ((smart adj device) or device or phone cell or cellphone) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/11 21:20 |
| S49 | 24 | S46 and S48 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | ON | 2019/11/11 21:21 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| S50 | 8 | ("20070083318" \| "20080059007" \| "20100131168" \| "20100161173" \| "6067031" \| "6285929" \| "6301530").PN. OR ("9187095").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/11/11 21:21 |
| S51 | 3 | ("20090142173" \| "20090143985" \| "5572449").PN. OR ("10093309").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/11/11 21:22 |
| S52 | 20 | S49 and ((smart adj device) or phone or cell or cellphone or pda or (personal adj computer)) | US-PGPUB; USPAT; USOCR | OR | ON | 2019/11/11 21:22 |
| S53 | 24 | S47 and S48 | US-PGPUB; USPAT; USOCR | OR | ON | 2019/11/11 21:23 |
| S54 | 20 | S53 and ((smart adj device) or phone or cell or cellphone or pda or (personal adj computer)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/11 21:23 |
| S55 | 546 | ((sens$4 or detect$3) near5 (pitch and roll)) with level$3 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/11/12 12:02 |
| S56 | 0 | ((sens$4 or detect$3) near5 (pitch and roll)) with level$3 with trailer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/12 12:04 |
| S57 | 4 | ((sens$4 or detect$3) near5 (pitch and roll)) same level$3 same trailer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | ON | 2019/11/12 12:05 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| S58 | 20 | ((("Leonard") near3 ("Charles") near3 ("A"))).INV. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/11/12 12:07 |
| S59 | 246 | S55 AND ( (G05D1/0891 OR G05D1/0011 OR G05D1/0016 OR G05D1/0038 OR G05D2201/0202 OR G05D2201/0213 OR G05D1/0027 OR G05D1/021 OR G05D1/0225 OR G05D1/042 OR G05D1/0808 OR G05D1/102 OR B62D37/00 OR B62D55/00 OR B62D55/075 OR B62D57/02 OR B62D11/001 OR B62D1/00).CPC. OR (1/1 OR 701/1 OR 701/2 OR 701/31.5 OR 701/31.9 OR 701/45 OR 701/21 OR 701/33.4 OR 701/34.4 OR 701/409 OR 701/41 OR 701/420 OR 701/49 OR 701/50 OR 702/150 OR 702/154 OR 702/175 OR 73/504.12 OR 73/198 OR 123/519 OR 280/728.3 OR 700/258 OR 700/275 OR 700/83 OR 705/7.32).CCLS. OR (G05D1/00 OR G05D1/08 OR G05D1/02 OR G05D1/04 OR G05D1/10 OR B62D37/00 OR B62D55/00 OR B62D55/075 OR B62D57/02 OR B62D11/00).IPCR. ) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/11/12 12:10 |
| S60 | 74 | S59 and ((vehicle or car or automobile or truck or van or trailer) near4 (level$4)) and ((smart adj device) or phone or cell or cellphone or mobile) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/12 12:20 |
| S61 | 33 | S60 and ((pitch near5 roll) near6 level$3) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/12 12:22 |

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|---|---|---|---|---|---|---|
| S62 | 32 | ("20030135312" \| "20050067227" \| "20050073141" \| "20050140759" \| "20060226612" \| "20070088275" \| "20070249990" \| "20090137943" \| "20100185139" \| "20130240812" \| "20140214283" \| "20160075311" \| "20180127249" \| "3592443" \| "4084830" \| "4216939" \| "4735603" \| "5143386" \| "6250650" \| "6584385" \| "6632194" \| "6634461" \| "7182752" \| "7193381" \| "7199534" \| "7208896" \| "7250035" \| "7285112" \| "7338473" \| "7413559" \| "7854724" \| "9114684").PN. OR ("10427654").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/11/12 12:23 |
| S63 | 930 | display with (vehicle or car or automobile) with (adjust$4) with height | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/14 18:00 |
| S64 | 10 | display$3 with (vehicle or car or automobile) with (adjust$4) with height with (pitch or roll) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/14 18:01 |
| S65 | 3 | display$3 with (vehicle or car or automobile) with (adjust$4) with height with (pitch or roll) with wheel | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:04 |
| S66 | 246 | display$3 with (vehicle or car or automobile) with (adjust$4) with height with wheel | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:05 |

| | | | | | | |
|---|---|---|---|---|---|---|
| S67 | 16 | S66 and pitch and roll | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:06 |
| S68 | 8549 | display$3 with (adjust$4) with wheel | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:09 |
| S69 | 5060596 | display$3 with (adjust$4) with wheeland height | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:10 |
| S70 | 1280 | display$3 with (adjust$4) with wheel with height | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:10 |
| S71 | 1923 | G05D1/0891.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:11 |
| S72 | 1 | S70 and S71 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:11 |

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|---|---|---|---|---|---|---|
| S73 | 515 | S71 AND ( (B60W2420/42 OR B60W2520/14 OR B60W30/02 OR B60W10/20 OR B60W2520/10 OR B60W2520/16 OR B60W2520/18 OR B60W2554/00 OR B60W2720/10 OR B60W2420/52 OR B60W2556/50 OR B60W2710/207 OR B60W30/06 OR B60W30/09 OR B60W40/10 OR B60W40/105 OR B60W10/04 OR B60W10/06 OR B60W10/08 OR B60W10/18 OR B60W10/184 OR B60W10/22 OR B60W10/30 OR B60W2050/0026 OR B60W2050/143 OR B60W2050/146 OR B60W2300/12 OR B60W2300/36 OR B60W2420/40 OR B60W2420/54 OR B60W2420/62 OR B60W2420/905 OR B60W2422/90 OR B60W2510/18 OR B60W2510/20 OR B60W2520/06 OR B60W2520/125 OR B60W2520/20 OR B60W2530/145 OR B60W2530/18 OR B60W2530/20 OR B60W2540/18 OR B60W2556/45 OR B60W2556/60 OR B60W2710/0666 OR B60W2710/083 OR B60W2710/18 OR B60W2710/182 OR B60W2710/22 OR B60W2720/00 OR B60W2720/14 OR B60W2720/16 OR B60W2720/24 OR B60W30/025 OR B60W30/045 OR B60W30/08 OR B60W30/085 OR B60W30/095 OR B60W30/10 OR B60W30/143 OR B60W30/18109 OR B60W40/00 OR B60W40/068 OR B60W40/09 OR B60W40/112 OR B60W40/114 OR B60W50/0098 OR B60W50/0205 OR B60W50/14).CPC. OR (1/1).CCLS. OR (B60W30/02 OR B60W30/06 OR B60W10/04 OR B60W10/06 OR B60W10/08 OR B60W10/184 OR B60W10/20 OR B60W10/30 OR B60W30/04 OR B60W30/09 OR B60W30/10 OR B60W30/14 OR B60W30/18 OR B60W40/068 OR B60W40/10 OR B60W50/02 OR B60W50/14).IPCR. ) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:12 |
| S74 | 108 | S73 and ((smart adj device) or phone or cell or cellphone or pda or (personal adj computer)) | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/14 18:13 |

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|---|---|---|---|---|---|---|
| S75 | 1728 | wheel with display with height | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/15 16:40 |
| S76 | 1796 | ((vehicle or car or automobile) near4(level$4)) and ((sens$4 or detect$3)near5 (inclinat$4)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/15 16:40 |
| S77 | 7 | S75 and S76 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/15 16:41 |
| S78 | 5 | ("6898501" \| "7316406" \| "7434816").PN. OR ("8209086").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2020/04/15 16:57 |
| S79 | 39 | ("20020030586" \| "20020180172" \| "5259017" \| "6293562" \| "7025361").PN. OR ("7316406").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2020/04/15 17:00 |
| S80 | 14 | ("5176391" \| "5890721" \| "5915700" \| "6176495" \| "6351696" \| "6584385").PN. OR ("7025361").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2020/04/15 17:03 |
| S81 | 0 | display$3 with (actual or current) with lavel$3 with each with wheel | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/15 17:12 |
| S82 | 0 | display$3 with (actual or current) with lavel$3 with wheel | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/15 17:12 |
| S83 | 105 | display$3 with (actual or current) with level$3 with wheel | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/15 17:12 |

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|---|---|---|---|---|---|---|
| S84 | 0 | display$3 with (actual or current) with level$3 with each with wheel | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/15 17:12 |
| S85 | 279 | display$3 with level$3 with wheel with (status or condition) | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/15 17:18 |
| S86 | 331 | display$3 with level$3 with wheel with (status or condition) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/15 17:18 |
| S87 | 331 | display$3 with level$3 with wheels with (status or condition) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/15 17:18 |
| S88 | 56 | display$3 with (car or vehicle or atomobile) with image with level$3 with wheels with (status or condition) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/15 17:23 |
| S89 | 92 | display$3 with (car or vehicle or atomobile) with image with level$3 with wheels | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/15 17:24 |
| S90 | 227 | display$3 with (car or vehicle or atomobile) with image with (adjust$4 or chang$3 or modificat$4 or alter$5) with level$3 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/15 17:29 |

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|---|---|---|---|---|---|---|
| S91 | 574 | display with image with (vehicle or uav or drone) with level | US-PGPUB; USPAT; USOCR | OR | OFF | 2020/04/15 17:37 |
| S92 | 0 | disply$3 with image with (vehicle or uav or drone) with level$3 | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/15 17:38 |
| S93 | 998 | display$3 with image with (vehicle or uav or drone) with level$3 | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/15 17:38 |
| S94 | 611 | S93 AND ( (G05D1/0088 OR G05D2201/0213 OR G05D1/0061 OR G05D1/0223 OR G05D1/0257 OR G05D1/0016 OR G05D1/0891 OR G05D1/0011 OR G05D1/0055 OR G05D1/0094 OR G05D1/02 OR G05D1/0214 OR G05D1/0221 OR G05D1/0274 OR G05D1/0278 OR G05D1/12 OR G05D2201/0201 OR G05D2201/0208 OR G05D2201/0215 OR B60T2201/04 OR B60T7/12 OR B60T8/171 OR B60T13/662 OR B60T17/22 OR B60T2201/022 OR B60T2201/06 OR B60T2260/06 OR B60T7/122 OR B60T7/22 OR B60T8/245 OR B60T1/062 OR B60T2210/36 OR B60T2220/04 OR B60T7/042 OR B60T8/32 OR B60T8/3205 OR B60T13/74 OR B60T13/741 OR B60T1/005 OR B60T2201/09 OR B60T2201/10 OR B60T2210/14 OR B60T2210/16 OR B60T2230/03 OR B60T2230/04 OR B60T2270/89 OR B60T7/085 OR B60T7/20 OR B60T8/17 OR B60T8/1706 OR B60T8/172 OR B60T8/175 OR B60T8/17552 OR B60T8/17616 OR B60T8/3215 OR B60T8/4827 OR B60T8/52).CPC. OR (1/1 OR 348/148 OR 600/479 OR 701/41).CCLS. OR (G05D1/00 OR G05D1/02 OR G05D1/08 OR G05D1/12 OR B60T8/32 OR B60T7/12 OR B60T8/24 OR B60T13/66 OR B60T8/171 OR B60T13/74 OR B60T17/22 OR B60T1/00 OR B60T7/20 OR B60T8/172 OR B60T8/175 OR | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/15 17:39 |

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|---|---|---|---|---|---|---|
| | | B60T8/1755 OR B60T8/1761 OR B60T8/48).IPCR. ) | | | | |
| S95 | 219 | S94 and ((adjust$3 or alter$3 or chang$3 or modif$4) near3 (level$3 or orientation or inclination)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/15 17:40 |
| S96 | 4835545 | display with wheel woth height | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/15 18:12 |
| S97 | 2073 | display with wheel with height | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/15 18:13 |
| S98 | 209 | indicator with display with pitch with roll | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/16 17:21 |
| S99 | 35 | S98 and (simultaneously near5 display$4) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/16 17:24 |
| S100 | 40 | display with image with inclination with wheel | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | ON | 2020/04/16 17:41 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| S101 | 2 | "20150352956" | US-PGPUB; USPAT | OR | ON | 2020/04/16 17:48 |
| S102 | 28 | ("20030080877" \| "20050280514" \| "20060287826" \| "20070182537" \| "20080215223" \| "20090112389" \| "20090261957" \| "20100164702" \| "20100289634" \| "20100302018" \| "20100321176" \| "20110069169" \| "20110087415" \| "20110090074" \| "20120072097" \| "20120218295" \| "20140277943" \| "20150203035" \| "20160042238" \| "6352318" \| "6785404" \| "7683771" \| "7954951" \| "8045003" \| "8103410" \| "8598999" \| "8633811").PN. OR ("9701199").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2020/04/16 17:48 |
| S103 | 1 | S102 and inclination | US-PGPUB; USPAT; USOCR | OR | OFF | 2020/04/16 17:52 |

**EAST Search History (Interference)**

<This search history is empty>

**4/16/2020 9:41:47 PM**
**C:\Users\lmartinezborrero\Documents\EAST\Workspaces\15619261.wsp**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | |
|---|---|
| Inventor(s) | Charles A. LEONARD |
| Application No. | 15/619,261 |
| Filing Date | June 9, 2017 |
| Title | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| Examiner | MARTINEZ BORRERO, Luis A. |
| Art Unit | 3665 |
| Confirmation No. | 2353 |

Commissioner for Patents
Via EFS-Web

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## AMENDMENT AND RESPONSE TO FINAL OFFICE ACTION

In response to the Final Office Action dated April 28, 2020, rejecting claims 1, 7, 9, 14, 16, and 18-32 of the above-referenced Application, in which claims 1, 7, 9, 14, 16, and 18-32 are currently pending, Applicant respectfully requests that the following amendments be entered and remarks be considered, without prejudice or disclaimer to continued examination on the merits. In view of these amendments and remarks, Applicant submits that the Application is now in condition for allowance and respectfully requests such action.

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**AMENDMENTS TO THE CLAIMS** begin on page 2; and

**APPLICANT ARGUMENTS/REMARKS MADE** begin on page 9.

## CLAIMS

Please amend the claims as follows, without prejudice or disclaimer to continued examination on the merits:

1. (Currently Amended) A system for leveling a vehicle ~~that is at rest~~, the system comprising:

a sensor device secured to a vehicle to sense an inclination of the vehicle in both a pitch direction and a roll direction when the vehicle is parked on the ground, the sensor device comprising a printed circuit board that includes:

a digital accelerometer that permits calculation in both the pitch direction and roll direction, and

a processor to process data collected by the digital accelerator; and

a smart device in wireless communication with the sensor device, the smart device including a display screen;

wherein at least one of the sensor device and smart device is configured to determine height adjustment amounts needed to level the vehicle in both the pitch direction and the roll direction;

wherein the smart device is configured to display at least one image representative of the vehicle on the display screen;

wherein the smart device is further configured to simultaneously display a plurality of adjustment indicators based on the height adjustment amounts on the display screen, each adjustment indicator showing an amount of adjustment in height with respect to the ground needed at a respective section of the vehicle to level the vehicle in at least one of the pitch direction and roll direction; and

wherein the smart device is further configured to update the display screen, substantially in real time, as one or more of the height adjustment amounts are changed.

2-6. (Cancelled)

7. (Original) The system according to claim 1, wherein the smart device and the sensor device communicate with each other through a wireless connection and the smart device

is configured to receive a serial number of the sensor device so that the smart device communicates with the particular sensor device.

8. (Cancelled)

9. (Currently Amended) A method for leveling a recreational vehicle, the method comprising:

sensing an inclination of the recreational vehicle in both a pitch direction and a roll direction when the recreational vehicle is parked on the ground;

determining height adjustment amounts needed to level the recreational vehicle in both the pitch direction and roll direction;

displaying at least one image representative of the recreational vehicle on a display screen of a smart device;

simultaneously displaying a plurality of adjustment indicators on the display screen, the adjustment indicators related to the height adjustment amounts needed to level the recreational vehicle, each adjustment indicator showing an amount of adjustment in height with respect to the ground needed at a respective section of the recreational vehicle to level the recreational vehicle in at least one of the pitch direction and roll direction; and

updating the display screen, essentially in real time, as the height adjustment amounts are changed.

10-13. (Cancelled)

14. (Previously Presented) The method according to claim 9, wherein the step of sensing the inclination of the recreational vehicle in both a pitch direction and a roll direction is performed by a corresponding sensor device, and wherein the smart device and the corresponding sensor device communicate with each other through a wireless connection, the method further comprising storing a serial number of the corresponding sensor device in the smart device so that the smart device communicates with the corresponding sensor device.

15. (Cancelled)

16. (Currently Amended) A non-transitory computer readable medium comprising computer executable instructions that, when executed by a processor of a smart device, control the smart device to perform steps comprising:

receiving a pitch angle measurement and a roll angle measurement of a vehicle ~~when the vehicle is at rest~~ from a sensor device secured to the vehicle when the vehicle is parked on the ground;

calculating in both the pitch direction and the roll direction for determining the height needed to adjust the vehicle to level the vehicle in both the pitch direction and the roll direction; and

displaying, on a display screen of the smart device, at least one image representative of the vehicle;

displaying, on the display screen of the smart device, a plurality of adjustment indicators based on the adjustment in height to the vehicle to obtain a level position of the vehicle in the pitch direction and the roll direction, each adjustment indicator showing an amount of adjustment in height with respect to the ground needed at a respective section of the vehicle to level the vehicle in at least one of the pitch direction and roll direction; and

updating the display screen of the smart device, essentially in real time, as the height needed to adjust the vehicle to level the vehicle changes.

17. (Cancelled)

18. (Previously Presented) The non-transitory computer readable medium according to claim 16, wherein the step of displaying the adjustment in height comprises the step of displaying, on the display screen of the smart device, the needed adjustment in height of at least one portion of a frame of the vehicle at or near at least one wheel position of the vehicle.

19. (Previously Presented) The system according to claim 1, wherein the adjustment indicators show the adjustments in height to at least one part of a frame of the vehicle located at or near at least one of four wheels of the vehicle.

20. (Previously Presented) The system according to claim 1, wherein the smart device is further configured to display on the display screen near-real-time height adjustments remaining that are needed to level the vehicle when the vehicle is in the process of being leveled.

21. (Previously Presented) The system according to claim 19, wherein the smart device is configured to calculate a first adjustment in height to level the vehicle in the pitch direction and a second adjustment in height to level the vehicle in the roll direction, and wherein the smart device is further configured to calculate the adjustments in height to the at least one part of the frame of the vehicle by adding the first adjustment with the second adjustment.

22. (Previously Presented) The system according to claim 21, wherein:

the at least one part of the frame includes a first part located at or near a front driver-side wheel, a second part located at or near a back driver-side wheel, a third part located at or near a front passenger-side wheel, and a fourth part located at or near a back passenger-side wheel;

an adjustment in height, if any, to the first part includes combining a rearward pitch adjustment of the first adjustment with a right roll adjustment of the second adjustment;

an adjustment in height, if any, to the second part includes combining a forward pitch adjustment of the first adjustment with the right roll adjustment of the second adjustment;

an adjustment in height, if any, to the third part includes combining the rearward pitch adjustment of the first adjustment with a left roll adjustment of the second adjustment; and

an adjustment in height, if any, to the fourth part includes combining the forward pitch adjustment of the first adjustment with the left roll adjustment of the second adjustment.

23. (Previously Presented) The system according to claim 1, further comprising a temperature calibration lookup table, wherein the smart device is configured to correct the height adjustment amounts based on current temperature readings and information from the temperature calibration lookup table.

24. (Previously Presented) The method according to claim 9, further comprising:

calculating a first adjustment in height to level the vehicle in the pitch direction;

calculating a second adjustment in height to level the vehicle in the roll direction;

calculating any needed adjustment in height to a first part of the frame located at or near a front driver-side wheel by combining a rearward pitch adjustment of the first adjustment and a right roll adjustment of the second adjustment;

calculating any needed adjustment in height to a second part of the frame located at or near a rear driver-side wheel by combining a forward pitch adjustment of the first adjustment and the right roll adjustment of the second adjustment;

calculating any needed adjustment in height to a third part of the frame located at or near a front passenger-side wheel by combining the rearward pitch adjustment of the first adjustment and a left roll adjustment of the second adjustment; and

calculating any needed adjustment in height to a fourth part of the frame located at or near a rear passenger-side wheel by combining the forward pitch adjustment of the first adjustment and the left roll adjustment of the second adjustment.

25. (Previously Presented) The method according to claim 9, further comprising the step of displaying on the display screen near-real-time height adjustments remaining that are needed to level the vehicle when the vehicle is in the process of being leveled.

26. (Previously Presented) The method according to claim 9, further comprising the step of correcting the height adjustment amounts based on current temperature readings and information from a temperature calibration lookup table.

27. (Previously Presented) The non-transitory computer readable medium according to claim 16, wherein the computer executable instructions, when executed, further control the smart device to:

calculate a first adjustment in height to level the vehicle in the pitch direction and a second adjustment in height to level the vehicle in the roll direction; and

calculate adjustments in height to each of at least one part of a frame of the vehicle by combining the first adjustment with the second adjustment.

28. (Previously Presented) The non-transitory computer readable medium according to claim 27, wherein the at least one part of the frame includes a first part located at or near a front

driver-side wheel, a second part located at or near a back driver-side wheel, a third part located at or near a front passenger-side wheel, and a fourth part located at or near a back passenger-side wheel, and wherein the computer executable instructions, when executed, further control the smart device to:

calculate any needed adjustment in height to the first part by combining a rearward pitch adjustment of the first adjustment with a right roll adjustment of the second adjustment;

calculate any needed adjustment in height to the second part by combining a forward pitch adjustment of the first adjustment with the right roll adjustment of the second adjustment;

calculate any needed adjustment in height to the third part by combining the rearward pitch adjustment of the first adjustment with a left roll adjustment of the second adjustment; and

calculate any needed adjustment in height to the fourth part by combining the forward pitch adjustment of the first adjustment with the left roll adjustment of the second adjustment.

29. (Previously Presented) The non-transitory computer readable medium according to claim 16, wherein the computer executable instructions, when executed, further control the smart device to display, in near real time, height adjustments that are remaining for leveling the vehicle during a vehicle leveling process.

30. (Previously Presented) The non-transitory computer readable medium according to claim 16, wherein the computer executable instructions, when executed, further control the smart device to correct the adjustments in height based on current temperature readings and information from a temperature calibration lookup table.

31. (Previously Presented) The system according to claim 1, wherein the vehicle includes four wheels, and wherein at least one of the sensor device and smart device is configured to determine, based on the height needed to level the vehicle in both the pitch direction and the roll direction, adjustments in height to at least one of four parts of a frame of the vehicle, the four parts of the frame located at or near the four wheels of the vehicle.

32. (Previously Presented) The system according to claim 1, wherein the information sensed by the sensor device regarding the inclination of the vehicle in both the pitch direction and

the roll direction is processed to determine an amount of adjustment in height to a rear section or front section of the vehicle needed to level the vehicle in the pitch direction and to determine an amount of adjustment in height to a first side section or a second side section of the vehicle needed to level the vehicle in the roll direction.

## REMARKS

This Amendment and Response is being submitted in response to the Final Office Action dated April 28, 2020. In the present amendment, claims 1, 9, and 16 have been amended to further clarify the subject matter which Applicant regards as the present invention, without prejudice or disclaimer to continued examination on the merits. These amendments are fully supported in the Specification, Drawings, and Claims of the Application and no new matter has been added. Based upon the amendments and the remarks presented herein, reconsideration of the Application is respectfully requested.

### I. Response to Double Patenting Rejection

Claims 1, 7, 9, 14, 16, and 18-32 are provisionally rejected on the ground of non-statutory double patenting as allegedly being unpatentable over claims 1, 10, 12, 14, 15, 20, 22, 23, 26, 28, 29, 38, and 45-54 of co-pending App. No. 14/961,787. Applicant respectfully traverses the Double Patenting rejection for at least the reason that the claims in the present application and the claims in App. No. 14/961,787 are directed to patentably distinct inventions. Therefore, Applicant respectfully requests that the Examiner kindly withdraw the Double Patenting rejection.

### II. Response to 35 U.S.C. § 103 Rejection

Claims 1, 7, 9, 14, 16, 18-22, 24, 25, 27-29, 31, and 32 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over U.S. Pub. No. 2008/0142768 ("Thorpe") in view of U.S. Pub. No. 2012/0197587 ("Luk") and U.S. Pat. No. 10,086,954 ("Zhong"). Also, claims 23, 26, and 30 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Thorpe in view of Luk and Zhong and further in view of U.S. Pat. No. 8,239,162 ("Tanenhaus"). Applicant respectfully traverses the rejections, as discussed below.

Independent claim 1, as amended, is reproduced below:

> 1. A system for leveling a vehicle, the system comprising:
> a sensor device secured to a vehicle to sense an inclination of the vehicle in both a pitch direction and a roll direction when the vehicle is parked on the ground, the sensor device comprising a printed circuit board that includes:
> a digital accelerometer that permits calculation in both the pitch direction and roll direction, and
> a processor to process data collected by the digital accelerator; and

a smart device in wireless communication with the sensor device, the smart device including a display screen;

wherein at least one of the sensor device and smart device is configured to determine height adjustment amounts needed to level the vehicle in both the pitch direction and the roll direction;

wherein the smart device is configured to display at least one image representative of the vehicle on the display screen;

wherein the smart device is further configured to **simultaneously display a plurality of adjustment indicators** based on the height adjustment amounts on the display screen, **each adjustment indicator showing an amount of adjustment in height with respect to the ground needed** at a respective section of the vehicle **to level the vehicle** in at least one of the pitch direction and roll direction; and

wherein the smart device is further configured to update the display screen, substantially in real time, as one or more of the height adjustment amounts are changed.

(*Emphasis added*)

Claim 1 is directed to a system for leveling a vehicle. The system includes a sensor device in wireless communication with a smart device. The sensor device senses inclination of the vehicle in both a pitch direction and a roll direction. The system is configured to determine height adjustment amounts needed to level the vehicle in both the pitch direction and the roll direction. The smart device is configured to display at least one image representative of the vehicle on the display screen and simultaneously display a plurality of adjustment indicators. The Office Action relies on Zhong with respect to the features of displaying an image representative of the vehicle and simultaneously displaying adjustment indicators.

It is respectfully submitted Zhong is not analagous art and thus not properly combinable with Thorpe and Luk. Determining whether a secondary reference is analogous art is a two-step test. First, it must be determined whether the art is from the same field of endeavor as the claimed invention. Second, if the reference is not within the same field or endeavor, it must be determined whether the reference is reasonably pertinent to the particular problem to which the inventor is involved.

In this case, Zhong is clearly not within the same field as the claimed invention. Zhong is directed to an Unmanned Aerial Vehicle. Zhong is also not reasonably pertinent to the particular problem to which the present invention is directed. The embodiments of the present application are directed to leveling a vehicle "that is at rest." The feature of being "at rest" has been amended in the claims to clarify that calculations are made to the vehicle of interest when this vehicle "is parked on the ground." In contrast, Zhong is directed to a "UAV flight display" for

displaying flight information related to an unmanned aerial vehicle (UAV). Clearly, during flight, the UAV is not "parked on the ground," as claimed. Since the present invention is directed to leveling a vehicle at rest (when the vehicle is parked on the ground), it is believed that Zhong is related to a different field of endeavor (i.e., displaying "flight" information) that is non-analogous to the present invention. Therefore, Applicant contends that Zhong cannot be reasonably combined with Thorpe and Luk for at least the reason that Zhong is non-analogous art. Nevertheless, Zhong does not teach or suggest specific features of claim 1, as described in more detail below.

Claim 1 recites that the smart device is configured to **display a plurality of adjustment indicators** based on height adjustment amounts, whereby each adjustment indicator shows **an amount of adjustment in height with respect to the ground needed... to level the vehicle...** The Office Action relies on FIGS. 5-6; col. 3, lines-10-17; and col. 33, lines 28-38 of Zhong regarding these claim features. Zhong appears to disclose a vertical distance indicator 612 (which shows the height of the UAV above a reference point), a horizontal distance indicator 614 (which shows the horizontal distance from the reference point), a vertical speed indicator 618 and vertical direction indicator 619 (which show the vertical speed and vertical direction (upward or downward movement) of the UAV), and a horizontal speed indicator 620 (which shows the horizontal speed of the UAV). However, Zhong does not teach or suggest **adjustment indicators** that are based on **height adjustment amounts**, as claimed. More particularly, Zhong does not teach or suggest displaying adjustment indicators that show an amount of **adjustment in height** with respect to the ground **needed... to level the vehicle...** Although Zhong describes a pitch/roll indicator that can be used to indicate a pitch orientation and/or a roll orientation of the UAV, Zhong does not teach or suggest specifically displaying an amount of adjustment in height needed to level the vehicle that is parked on the ground. Also, the other cited references do not teach or suggest displaying an amount of adjustment in height needed to level a vehicle and therefore these other references fail to overcome the deficiencies of Zhong in this regard.

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. §103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render the claims unpatentable, however, the Office must do more than merely "consider" each and every

feature for this claim. Instead, the asserted combination of the patents to Zhong, Thorpe, and Luk must also teach or suggest *each and every claim feature*. *In re Wada and Murphy*, Appeal 2007-3733. Indeed, as the Board of Patent Appeal and Interferences has confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention – *including all its limitations* – with the teaching of the prior art." *See In re Wada and Murphy*, Appeal 2007-3733, *citing In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original).

Further, the necessary presence of all claim features is axiomatic, since the Supreme Court has long held that obviousness is a question of law based on underlying factual inquiries, including ... ascertaining the differences between *the claimed invention* and the prior art. *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Indeed, Applicant submits that this is why Section 904 of the MPEP instructs Examiners to conduct an art search that covers "the invention *as described and claimed.*" Lastly, Applicant respectfully directs attention to MPEP § 2143, the instructions of which buttress the conclusion that obviousness requires at least a suggestion of all of the features of a claim, since the Supreme Court in *KSR Int'l v. Teleflex Inc.* stated that "there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR Int'l v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (*quoting In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

In sum, it remains well-settled law that obviousness requires at least a suggestion of all of the features in a claim. *See In re Wada and Murphy*, Appeal 2007-3733, *citing CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003) and *In re Royka*, 490 F.2d 981, 985 (CCPA 1974)). As the cited references fail to teach or suggest every feature of the claims, the 103 rejection should be withdrawn.

Additionally, merely showing that a person of ordinary skill in the art could adapt a piece of prior art to perform a recited function is inadequate to show that a person of ordinary skill would adapt that teaching. *In re Giannelli,* 739 F.3d 1375, 1380 (Fed. Cir. 2014), citing *In re Sullivan*, 498 F.3d 1345, 1351 (Fed. Cir. 2007). A combination is not obvious simply because it could have been made – the proper focus is "what a skilled artisan would have been motivated to

do at the time of the invention" rather than "what a skilled artisan would have been able to do." *Polaris Industries, Inc. v. Arctic Cat, Inc.,* 882 F.3d 1056, 1068 (Fed. Cir. 2018).

The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious." MPEP §2143. In the present case, there is no indication a skilled artisan would be motivated to look to Zhong, a flying UAV, to make up for the deficiencies of Thorpe. There is no disclosure or suggestion in Zhong that would make it applicable to a vehicle at rest.

For at least these reasons, Applicant contends that claim 1 is allowable over the cited references and is patentable under 35 U.S.C. § 103. Likewise, independent claims 9 and 16 include many of the same or similar features highlighted above with respect to claim 1 and are believed to be allowable. In addition, claims 7, 14, and 18-32 are allowable for at least the reason that they depend directly or indirectly from one of the independent claims 1, 9, and 16 and therefore contain the same allowable features. Therefore, since all the pending claims are allowable over the cited references, Applicant respectfully requests that the Examiner kindly withdraw the 35 U.S.C. § 103 rejections.

## AUTHORIZATION FOR E-MAIL COMMUNICATION - MPEP § 502.03

Recognizing that Internet communications are not secure, we hereby authorize the USPTO to communicate with any authorized representative concerning any subject matter of this Application by electronic mail. We understand that a copy of these communications will be made of record in the Application file.

## CONCLUSION

Applicant would like to thank the Examiner for the attention and consideration accorded the present Application. It is submitted that the Application is in good and proper form for allowance. A favorable action on the part of the Examiner is respectfully solicited. The Examiner is encouraged to call the undersigned at (704) 790-3600 for any questions or if it appears that an interview would be helpful in advancing the case. Should the Examiner determine that any further action is necessary to place the Application in condition for allowance, the Examiner is encouraged to contact the undersigned at the telephone number, facsimile number, address, or email address provided below. It is not believed that any fees for additional claims, extensions of time, or the like are required beyond those that may otherwise be indicated in the documents accompanying this paper. However, if such additional fees are required, the Examiner is encouraged to notify the undersigned at the Examiner's earliest convenience.

Respectfully submitted,

Date: June 29, 2020

/Seth L. Hudson /
Seth L. Hudson
Registration No.: 48,281

Attorney for Applicant

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Doc Code: A.NE.AFCP
Document Description: After Final Consideration Pilot Program Request

PTO/SB/434 (05-13)

# CERTIFICATION AND REQUEST FOR CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0

| Practitioner Docket No.: | Application No.: | Filing Date: |
|---|---|---|
| 7137CIP | 15/619,261 | June 9, 2017 |
| **First Named Inventor:** | **Title:** | |
| Charles A. Leonard | Vehicle Leveling Systems, Devices and Methods and Computer Program Products For Leveling Vehicles Using Smart Devices | |

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0 (AFCP 2.0) OF THE ACCOMPANYING RESPONSE UNDER 37 CFR 1.116.

1. The above-identified application is (i) an original utility, plant, or design nonprovisional application filed under 35 U.S.C. 111(a) [a continuing application (*e.g.*, a continuation or divisional application) is filed under 35 U.S.C. 111(a) and is eligible under (i)], or (ii) an international application that has entered the national stage in compliance with 35 U.S.C. 371(c).
2. The above-identified application contains an outstanding final rejection.
3. Submitted herewith is a response under 37 CFR 1.116 to the outstanding final rejection. The response includes an amendment to at least one independent claim, and the amendment does not broaden the scope of the independent claim in any aspect.
4. This certification and request for consideration under AFCP 2.0 is the only AFCP 2.0 certification and request filed in response to the outstanding final rejection.
5. Applicant is willing and available to participate in any interview requested by the examiner concerning the present response.
6. This certification and request is being filed electronically using the Office's electronic filing system (EFS-Web).
7. Any fees that would be necessary consistent with current practice concerning responses after final rejection under 37 CFR 1.116, *e.g.*, extension of time fees, are being concurrently filed herewith. [There is no additional fee required to request consideration under AFCP 2.0.]
8. By filing this certification and request, applicant acknowledges the following:
    - Reissue applications and reexamination proceedings are not eligible to participate in AFCP 2.0.
    - The examiner will verify that the AFCP 2.0 submission is compliant, *i.e.*, that the requirements of the program have been met (see items 1 to 7 above). For compliant submissions:
        - The examiner will review the response under 37 CFR 1.116 to determine if additional search and/or consideration (i) is necessitated by the amendment and (ii) could be completed within the time allotted under AFCP 2.0. If additional search and/or consideration is required but cannot be completed within the allotted time, the examiner will process the submission consistent with current practice concerning responses after final rejection under 37 CFR 1.116, *e.g.*, by mailing an advisory action.
        - If the examiner determines that the amendment does not necessitate additional search and/or consideration, or if the examiner determines that additional search and/or consideration is required and could be completed within the allotted time, then the examiner will consider whether the amendment places the application in condition for allowance (after completing the additional search and/or consideration, if required). If the examiner determines that the amendment does not place the application in condition for allowance, then the examiner will contact the applicant and request an interview.
            - The interview will be conducted by the examiner, and if the examiner does not have negotiation authority, a primary examiner and/or supervisory patent examiner will also participate.
            - If the applicant declines the interview, or if the interview cannot be scheduled within ten (10) calendar days from the date that the examiner first contacts the applicant, then the examiner will proceed consistent with current practice concerning responses after final rejection under 37 CFR 1.116.

| Signature | Date |
|---|---|
| /Seth L.Hudson/ | 06/29/2020 |
| **Name (Print/Typed)** Seth L. Hudson | **Practitioner Registration No.** 48281 |

***Note**: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.*

[✓] * Total of 1 forms are submitted.

**ETN1003**
**473/642**

# Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 39853746 |
| **Application Number:** | 15619261 |
| **International Application Number:** | |
| **Confirmation Number:** | 2353 |
| **Title of Invention:** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| **First Named Inventor/Applicant Name:** | Charles A. Leonard |
| **Customer Number:** | 22474 |
| **Filer:** | Seth Lee Hudson/Teresa Bush-Dugar |
| **Filer Authorized By:** | Seth Lee Hudson |
| **Attorney Docket Number:** | 7137CIP |
| **Receipt Date:** | 29-JUN-2020 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 13:30:22 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | no |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | | 7137CIP_Response_to_Final_OA.pdf | 1081292<br>13741f87054db2af4f27e90aa5825ee38ecd618a | yes | 14 |

| | Multipart Description/PDF files in .zip description | | |
|---|---|---|---|
| | **Document Description** | **Start** | **End** |
| | Response After Final Action | 1 | 1 |
| | Claims | 2 | 8 |
| | Applicant Arguments/Remarks Made in an Amendment | 9 | 13 |
| | Internet Communications Authorized | 14 | 14 |

| | | | | | |
|---|---|---|---|---|---|
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | After Final Consideration Program Request | 7137CIP_AFCP.pdf | 226816<br>90fdf782abebc08759a6479af767c7558ca6a0ae | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 1308108 | | |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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| PATENT APPLICATION FEE DETERMINATION RECORD<br>Substitute for Form PTO-875 | Application or Docket Number<br>15/619,261 | Filing Date<br>06/09/2017 | ☐ To be Mailed |
|---|---|---|---|

**ENTITY:** ☐ LARGE ☑ SMALL ☐ MICRO

## APPLICATION AS FILED - PART I

| FOR | (Column 1)<br>NUMBER FILED | (Column 2)<br>NUMBER EXTRA | | RATE ($) | FEE ($) |
|---|---|---|---|---|---|
| ☐ BASIC FEE<br>(37 CFR 1.16(a), (b), or (c)) | N/A | N/A | | N/A | |
| ☐ SEARCH FEE<br>(37 CFR 1.16(k), (i), or (m)) | N/A | N/A | | N/A | |
| ☐ EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q)) | N/A | N/A | | N/A | |
| TOTAL CLAIMS<br>(37 CFR 1.16(i)) | minus 20 = | * | | x $40 = | |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h)) | minus 3 = | * | | x $210 = | |
| ☐ APPLICATION SIZE FEE (37 CFR 1.16(s)) | If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). | | | | |
| ☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j)) | | | | | |
| * If the difference in column 1 is less than zero, enter "0" in column 2. | | | | TOTAL | |

## APPLICATION AS AMENDED - PART II

| | | (Column 1) | | (Column 2) | (Column 3) | | | |
|---|---|---|---|---|---|---|---|---|
| AMENDMENT | 06/29/2020 | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | | RATE ($) | ADDITIONAL FEE ($) |
| | Total<br>(37 CFR 1.16(i)) | * 20 | Minus | ** 20 | = 0 | | x $50 = | 0 |
| | Independent<br>(37 CFR 1.16(h)) | * 3 | Minus | *** 3 | = 0 | | x $230 = | 0 |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | |
| | | | | | | | TOTAL ADD'L FEE | 0 |

| | | (Column 1) | | (Column 2) | (Column 3) | | | |
|---|---|---|---|---|---|---|---|---|
| AMENDMENT | | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | | RATE ($) | ADDITIONAL FEE ($) |
| | Total<br>(37 CFR 1.16(i)) | * | Minus | ** | = | | x $0 = | |
| | Independent<br>(37 CFR 1.16(h)) | * | Minus | *** | = | | x $0 = | |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | |
| | | | | | | | TOTAL ADD'L FEE | |

| | |
|---|---|
| * If the entry in column 1 is less than the entry in column 2, write "0" in column 3. | SLIE |
| ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". | /FELICIA R FARMER/ |
| *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". | |
| The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1. | |

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

**ETN1003**
**477/642**

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/619,261 | 06/09/2017 | Charles A. Leonard | 7137CIP | 2353 |

22474 7590 07/27/2020

Clements Bernard Walker
4500 Cameron Valley Parkway
Suite 350
Charlotte, NC 28211

| EXAMINER | |
|---|---|
| MARTINEZ BORRERO, LUIS A | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3665 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 07/27/2020 | 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):

cwright@worldpatents.com
patlaw@worldpatents.com

| **Advisory Action Before the Filing of an Appeal Brief** | **Application No.** 15/619,261 | **Applicant(s)** Leonard, Charles A. | |
|---|---|---|---|
| | **Examiner** LUIS A MARTINEZ BORRERO | **Art Unit** 3665 | **AIA (FITF) Status** Yes |

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

THE REPLY FILED 29 June 2020 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☑ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☑ The period for reply expires 2 months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection.The current period for reply expires ____ months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.
   *Examiner Note*: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANTS FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☐ They raise the issue of new matter (see NOTE below);
   c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.
   NOTE: _____ (See 37CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicants reply has overcome the following rejection(s): _____
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☑ For purposes of appeal, the proposed amendment(s):(a) ☐ will not be entered, or (b) ☑ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____
9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
11. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☑ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
13. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
14. ☑ Other: PTO-2323.

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:
    Claim(s) allowed:_____.
    Claim(s) objected to:_____.
    Claim(s) rejected:1,7,9,14,16 and 18-32.
    Claim(s) withdrawn from consideration:_____.

| /HUNTER B LONSBERRY/<br>Supervisory Patent Examiner, Art Unit 3665 | /L.A.M/<br>Examiner, Art Unit 3665 |
|---|---|



**ETN1003**
**479/642**

Continuation of REQUEST FOR RECONSIDERATION/OTHER 12. The request for reconsideration has been considered but does NOT place the application in condition for allowance because: The applicant amendments and arguments are not persuasive. The applicant argues that "Hong is clearly not within the same field as the claimed invention. Hong is directed to an Unmanned Aerial Vehicle. Hong is also not reasonably pertinent to the particular problem to which the present invention is directed. The embodiments of the present application are directed to leveling a vehicle "that is at rest." The feature of being "at rest" has been amended in the claims to clarify that calculations are made to the vehicle of interest when this vehicle "is parked on the ground." In contrast, Hong is directed to a "UAV flight display" displaying flight information related to an unmanned aerial vehicle". However, the examiner respectfully disagrees. The rejection is based on the combination of all references presented in the Final Office Action and not based only on the teachings of Hong. Hong is use in the rejection to teach the limitation directed to display in a smart device a plurality of adjustment indicators to indicate orientation of a vehicle. The main reference of the rejection already discloses determining the height adjustment needed to level a parked ground vehicle in both the pitch direction and the roll direction. Therefore, a person of ordinary skill in the art would consider obvious to take the height adjustments indicators of Thorpe and present them in the smart device of Hong in order to generate a visual indication on a display device of the adjustments. In other words, providing visual indication of a known feature using a known display device that display such known features is obvious and conventional. Therefore, the 103 rejection is maintained.

# AFCP 2.0 Decision

| Application No. | Applicant(s) | |
|---|---|---|
| 15/619,261 | Leonard, Charles A. | |
| **Examiner** | **Art Unit** | **AIA (FITF) Status** |
| LUIS A MARTINEZ BORRERO | 3665 | Yes |

This is in response to the After Final Consideration Pilot request filed 29 June 2020.

1. **Improper Request** – The AFCP 2.0 request is improper for the following reason(s) and the after final amendment submitted with the request will be treated under pre-pilot procedure.

   ☐ An AFCP 2.0 request form PTO/SB/434 (or equivalent document) was not submitted.

   ☐ A non-broadening amendment to at least one independent claim was not submitted.

   ☐ The request is not the first proper AFCP 2.0 request submitted in response to the most recent final rejection.

   ☐ Other: _____

2. **Proper Request**

   **A.** After final amendment submitted with the request will not be treated under AFCP 2.0.
   The after final amendment cannot be reviewed and a search conducted within the guidelines of the pilot program.

   ☐ The after final amendment will be treated under pre-pilot procedure.

   **B.** Updated search and/or completed additional consideration.
   The examiner performed an updated search and/or completed additional consideration of the after final amendment within the time authorized for the pilot program. The result(s) of the updated search and/or completed additional consideration are:

   ☐ 1. All of the rejections in the most recent final Office action are overcome and a Notice of Allowance is issued herewith.

   ☐ 2. The after final amendment would not overcome all of the rejections in the most recent final Office action . See attached interview summary for further details.

   ☐ 3. The after final amendment was reviewed, and it raises a new issue(s). See attached interview summary for further details.

   ☐ 4. The after final amendment raises new issues, but would overcome all of the rejections in the most recent final Office action. A decision on determining allowability could not be made within the guidelines of the pilot. See attached interview summary for further details, including any newly discovered prior art.

   ☑ 5. Other: See Continuation Sheet

   Examiner Note: Please attach an interview summary when necessary as described above.

Continuation of Proper Request- B. 5. Other: After a detail review of the amendments and the applicant's arguments, the examiner notes that the after final amendment does not overcome the 103 rejections in the last Final Office Action. The applicant's arguments are addressed in the PTO-303.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | |
|---|---|
| Inventor(s) | Charles A. LEONARD |
| Application No. | 15/619,261 |
| Filing Date | June 9, 2017 |
| Title | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| Examiner | MARTINEZ BORRERO, Luis A. |
| Art Unit | 3665 |
| Confirmation No. | 2353 |

Commissioner for Patents
Via EFS-Web

## AMENDMENT AND RESPONSE TO FINAL OFFICE ACTION

In response to the Final Office Action dated April 28, 2020, rejecting claims 1, 7, 9, 14, 16, and 18-32 of the above-referenced Application, in which claims 1, 7, 9, 14, 16, and 18-32 are currently pending, Applicant respectfully requests that the following amendments be entered and remarks be considered, without prejudice or disclaimer to continued examination on the merits. In view of these amendments and remarks, Applicant submits that the Application is now in condition for allowance and respectfully requests such action.

**AMENDMENTS TO THE CLAIMS** begin on page 2; and

**APPLICANT ARGUMENTS/REMARKS MADE** begin on page 9.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

| PATENT APPLICATION FEE DETERMINATION RECORD<br>Substitute for Form PTO-875 | Application or Docket Number<br>15/619,261 | Filing Date<br>06/09/2017 | ☐ To be Mailed |
|---|---|---|---|

**ENTITY:** ☐ LARGE ☑ SMALL ☐ MICRO

## APPLICATION AS FILED - PART I

| FOR | (Column 1)<br>NUMBER FILED | (Column 2)<br>NUMBER EXTRA | | RATE ($) | FEE ($) |
|---|---|---|---|---|---|
| ☐ BASIC FEE<br>(37 CFR 1.16(a), (b), or (c)) | N/A | N/A | | N/A | |
| ☐ SEARCH FEE<br>(37 CFR 1.16(k), (i), or (m)) | N/A | N/A | | N/A | |
| ☐ EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q)) | N/A | N/A | | N/A | |
| TOTAL CLAIMS<br>(37 CFR 1.16(i)) | minus 20 = | * | | x $40 = | |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h)) | minus 3 = | * | | x $210 = | |
| ☐ APPLICATION SIZE FEE (37 CFR 1.16(s)) | If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). | | | | |
| ☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j)) | | | | | |
| * If the difference in column 1 is less than zero, enter "0" in column 2. | | | | TOTAL | |

## APPLICATION AS AMENDED - PART II

| | | (Column 1) | | (Column 2) | (Column 3) | | | |
|---|---|---|---|---|---|---|---|---|
| AMENDMENT | 08/28/2020 | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | | RATE ($) | ADDITIONAL FEE ($) |
| | Total<br>(37 CFR 1.16(i)) | * 20 | Minus | ** 20 | = 0 | | x $50 = | 0 |
| | Independent<br>(37 CFR 1.16(h)) | * 3 | Minus | *** 3 | = 0 | | x $230 = | 0 |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | |
| | | | | | | | TOTAL ADD'L FEE | 0 |

| | | (Column 1) | | (Column 2) | (Column 3) | | | |
|---|---|---|---|---|---|---|---|---|
| AMENDMENT | | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | | RATE ($) | ADDITIONAL FEE ($) |
| | Total<br>(37 CFR 1.16(i)) | * | Minus | ** | = | | x $0 = | |
| | Independent<br>(37 CFR 1.16(h)) | * | Minus | *** | = | | x $0 = | |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | |
| | | | | | | | TOTAL ADD'L FEE | |

| | |
|---|---|
| * If the entry in column 1 is less than the entry in column 2, write "0" in column 3. | LIE |
| ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". | /DONNA D SMALLS LOGAN/ |
| *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". | |
| The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1. | |

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

# REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
## (Submitted Only via EFS-Web)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Application Number | 15/619,261 | Filing Date | 2017-06-09 | Docket Number (if applicable) | 7137CIP | Art Unit | 3665 |
| First Named Inventor | Charles A. Leonard | | | Examiner Name | Luis A. Martinez Borrero | | |

**This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.**
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

### SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

### MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

### FEES

☐ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No _____

### SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| Signature of Registered U.S. Patent Practitioner | | | |
|---|---|---|---|
| Signature | /Seth L. Hudson/ | Date (YYYY-MM-DD) | 2020-08-28 |
| Name | Seth L. Hudson | Registration Number | 48281 |

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

# Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 15619261 |
| **Filing Date:** | 09-Jun-2017 |
| **Title of Invention:** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| **First Named Inventor/Applicant Name:** | Charles A. Leonard |
| **Filer:** | Seth Lee Hudson/Teresa Bush-Dugar |
| **Attorney Docket Number:** | 7137CIP |

Filed as Small Entity

**Filing Fees for Utility under 35 USC 111(a)**

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | |
| **Extension-of-Time:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Miscellaneous:** | | | | |
| RCE- 2ND AND SUBSEQUENT REQUEST | 2820 | 1 | 950 | 950 |
| | | **Total in USD ($)** | | **950** |

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 40408513 |
| **Application Number:** | 15619261 |
| **International Application Number:** | |
| **Confirmation Number:** | 2353 |
| **Title of Invention:** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| **First Named Inventor/Applicant Name:** | Charles A. Leonard |
| **Customer Number:** | 22474 |
| **Filer:** | Seth Lee Hudson/Teresa Bush-Dugar |
| **Filer Authorized By:** | Seth Lee Hudson |
| **Attorney Docket Number:** | 7137CIP |
| **Receipt Date:** | 28-AUG-2020 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 09:34:04 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | CARD |
| Payment was successfully received in RAM | $950 |
| RAM confirmation Number | E20208R034260009 |
| Deposit Account | |
| Authorized User | |

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | | 7137CIP_Response_Final_Advisory_Action.pdf | 1248381<br>5650fd019deb3facbd570975a8fe5173bfd8b961 | yes | 14 |

**Multipart Description/PDF files in .zip description**

| Document Description | Start | End |
|---|---|---|
| Internet Communications Authorized | 14 | 14 |
| Applicant Arguments/Remarks Made in an Amendment | 9 | 13 |
| Claims | 2 | 8 |
| Response After Final Action | 1 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | Request for Continued Examination (RCE) | 7137CIP_2nd_RCE.pdf | 1350106<br>625743942a3df0d28c55eb562605d3ba49a3655e | no | 3 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 3 | Fee Worksheet (SB06) | fee-info.pdf | 30663<br>eca23d5499daa1f3afc86a5acacf98e08133ec68 | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 2629150 | | |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

## AUTHORIZATION FOR E-MAIL COMMUNICATION - MPEP § 502.03

Recognizing that Internet communications are not secure, we hereby authorize the USPTO to communicate with any authorized representative concerning any subject matter of this Application by electronic mail. We understand that a copy of these communications will be made of record in the Application file.

## CONCLUSION

Applicant would like to thank the Examiner for the attention and consideration accorded the present Application. It is submitted that the Application is in good and proper form for allowance. A favorable action on the part of the Examiner is respectfully solicited. The Examiner is encouraged to call the undersigned at (704) 790-3600 for any questions or if it appears that an interview would be helpful in advancing the case. Should the Examiner determine that any further action is necessary to place the Application in condition for allowance, the Examiner is encouraged to contact the undersigned at the telephone number, facsimile number, address, or email address provided below. It is not believed that any fees for additional claims, extensions of time, or the like are required beyond those that may otherwise be indicated in the documents accompanying this paper. However, if such additional fees are required, the Examiner is encouraged to notify the undersigned at the Examiner's earliest convenience.

Respectfully submitted,

Date: August 27, 2020

/Seth L. Hudson /
Seth L. Hudson
Registration No.: 48,281

Attorney for Applicant

**CLEMENTS BERNARD WALKER**
4500 Cameron Valley Parkway, Suite 350
Charlotte, North Carolina 28211 USA
Telephone: 704.366.6642
Facsimile: 704.366.9744
shudson@worldpatents.com

## REMARKS

This Amendment and Response is being submitted in response to the Final Office Action dated April 28, 2020 and the Advisory Action dated July 27, 2020. In the present amendment, claims 1, 9, and 16 have been amended to further clarify the subject matter which Applicant regards as the present invention, without prejudice or disclaimer to continued examination on the merits. These amendments are fully supported in the Specification, Drawings, and Claims of the Application and no new matter has been added. Based upon the amendments and the remarks presented herein, reconsideration of the Application is respectfully requested.

### I. Response to Double Patenting Rejection

Claims 1, 7, 9, 14, 16, and 18-32 are provisionally rejected on the ground of non-statutory double patenting as allegedly being unpatentable over claims 1, 10, 12, 14, 15, 20, 22, 23, 26, 28, 29, 38, and 45-54 of co-pending application no. 14/961,787. Since application no. 14/961,787 has been abandoned, the provisional double patenting rejection based on this application has been rendered moot. Therefore, Applicant respectfully requests that the Examiner kindly withdraw the Double Patenting rejection.

### II. Response to 35 U.S.C. § 103 Rejection

A. Claims 1, 7, 9, 14, 16, 18-22, 24, 25, 27-29, 31, and 32 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over U.S. Pub. No. 2008/0142768 ("Thorpe") in view of U.S. Pub. No. 2012/0197587 ("Luk") and U.S. Pat. No. 10,086,954 ("Zhong").

B. Claims 23, 26, and 30 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Thorpe in view of Luk and Zhong and further in view of U.S. Pat. No. 8,239,162 ("Tanenhaus").

Independent claim 1, as amended, is reproduced below:

> 1. A system for leveling a vehicle, the system comprising:
> a sensor device secured to a vehicle to sense an inclination of the vehicle in both a pitch direction and a roll direction when the vehicle is parked on an uneven surface of the ground, the sensor device comprising a printed circuit board that includes:
> a digital accelerometer that permits calculation in both the pitch direction and roll direction, and

a processor to process data collected by the digital accelerator; and

a smart device in wireless communication with the sensor device, the smart device including a display screen;

wherein, based on the inclination of the vehicle as sensed by the sensor device, at least one of the sensor device and smart device is configured to determine adjustment pairs, each adjustment pair including a height adjustment amount and a corresponding adjustment direction needed to level a respective section of the vehicle by movement of the respective section of the vehicle with respect to the uneven surface of the ground by the height adjustment amount in the corresponding adjustment direction;

wherein the display device of the smart device is configured to **display at least one image representative of the vehicle and showing the respective sections of the vehicle and to simultaneously display the height adjustment amount and corresponding adjustment direction of each adjustment pair adjacent to each respective section of the vehicle shown in the at least one image**; and

wherein the smart device is further configured to update the display screen, substantially in real time, as one or more of the height adjustment amounts are changed.

(*Emphasis added*)

Claim 1 is directed to a system for leveling a vehicle comprising a sensor device in wireless communication with a smart device having a display screen. The sensor device senses inclination of the vehicle in both a pitch direction and a roll direction. Based on the sensed inclination, the system is configured to determine "adjustment pairs," whereby each adjustment pair includes a "height adjustment amount" and a corresponding "adjustment direction" needed to level a "respective section" of the vehicle by movement of the respective section of the vehicle with respect to an uneven surface of the ground by the height adjustment amount in the corresponding adjustment direction.

First of all, the Office Action relies on Zhong with respect to various aspects of displaying an image representative of a vehicle. However, it is respectfully submitted that Zhong is non-analogous art with respect to the references of Thorpe and Luk and therefore cannot reasonably be combined with Thorpe and Luk. In particular, Thorpe is directed to the field of leveling a recreational vehicle configured to travel along the surface of the ground. Luk is directed to the field of evaluating the ride quality of a vehicle that also travels along the surface of the ground. In contrast, Zhong is directed to an Unmanned Aerial Vehicle (UAV) that is configured to travel in the air. All display information described by Zhong, as relied upon in the Office Action, relates to "flight" information while the UAV is in the air.

The Office Action states that

> *"a person of ordinary skill in the art would consider obvious to take the height adjustment indicators of Thorpe and present them in the smart device of Zhong in order to generate a visual indication on a display device of the adjustment."*

Applicant respectfully traverses this statement. One of ordinary skill in the art of UAVs clearly would not look to the art of "leveling ground vehicles" for displaying flight information. The claimed information includes "height adjustment amounts" and "corresponding adjustment directions" that can be used for leveling the parked vehicle with respect to an uneven surface of the ground. This information would clearly have no use with regard to a UAV that is in flight.

Determining whether a secondary reference is analogous art is a two-step test. First, it must be determined whether the art is from the same field of endeavor as the claimed invention. Second, if the reference is not within the same field or endeavor, it must be determined whether the reference is reasonably pertinent to the particular problem to which the inventor is involved.

In the present application, Zhong is clearly not within the same field as the claimed invention. Zhong is directed to an Unmanned Aerial Vehicle (UAV) and to a "UAV flight display" for displaying flight information related to an unmanned aerial vehicle (UAV). The embodiments of the present application are directed to leveling a vehicle that is parked on an uneven surface of the ground.

Zhong is also not reasonably pertinent to the particular problem to which the present invention is directed. The embodiments of the present application are concerned with determining information (e.g., height adjustments and directions) for leveling a vehicle and then clearly presenting this information to a user to enable the user to easily understand how to utilize leveling equipment (e.g., jacks, etc.) to level the vehicle and what sections of the vehicle are to be adjusted. In contrast, Zhong is directed to a UAV that clearly is not "parked on an uneven surface of the ground," as claimed, and does not need to be leveled using jacks or other leveling equipment. Since the present invention is directed to leveling a vehicle when the vehicle is parked on an uneven surface of the ground, it is believed that Zhong is related to a different field of endeavor (i.e., displaying "flight" information) that is non-analogous to the present invention. Therefore, Applicant contends that Zhong cannot be reasonably combined with Thorpe and Luk

for at least the reason that Zhong is non-analogous art. Nevertheless, Zhong also does not teach or suggest specific features of claim 1, as described in more detail below.

For example, the claimed display screen of the smart device is configured to "display at least one image representative of the vehicle and showing the respective sections of the vehicle and to **simultaneously display the height adjustment amount and corresponding adjustment direction of each adjustment pair adjacent to each respective section of the vehicle shown in the at least one image**." The Office Action appears to rely on FIGS. 5-6; col. 3, lines-10-17; and col. 33, lines 28-38 of Zhong regarding display details. Zhong seems to disclose a "vertical distance indicator" 612 (which shows the height of the UAV above a reference point), a "horizontal distance indicator" 614 (which shows the horizontal distance from the reference point), a "vertical speed indicator" 618 and a "vertical direction indicator" 619 (which show the vertical speed and vertical direction (upward or downward movement) of the UAV), and a "horizontal speed indicator" 620 (which shows the horizontal speed of the UAV). Of course, these parameters are all related to "flight" information, not parameters for showing a user how to adjust the vehicle in order to level the vehicle with respect to the uneven surface. Zhong does not teach or suggest determining *adjustment pairs*, whereby each adjustment pair includes a *height adjustment amount* and a *corresponding adjustment direction* needed to level a respective section of the vehicle by movement of the respective section of the vehicle with respect to the uneven surface of the ground by the height adjustment amount in the corresponding adjustment direction.

Furthermore, Zhong does not teach or suggest displaying an image of the vehicle (with its respective sections) and simultaneously displaying the **height adjustment amount and corresponding adjustment direction of each adjustment pair adjacent to each respective section of the vehicle shown in the at least one image**. Although Zhong describes a pitch/roll indicator that can be used to indicate a pitch orientation and/or a roll orientation of the UAV, Zhong does not teach or suggest specifically displaying an amount of adjustment in height needed to level the vehicle that is parked on the ground and a direction in which a respective section of the vehicle needs to move for leveling the vehicle. Also, the other cited references do not teach or suggest displaying an amount of adjustment in height needed to level a vehicle and therefore fail to overcome the deficiencies of Zhong in this regard.

For at least these reasons, Applicant contends that claim 1 is allowable over the cited references and is patentable under 35 U.S.C. § 103. Likewise, independent claims 9 and 16 include many of the same or similar features highlighted above with respect to claim 1 and are believed to be allowable. In addition, claims 7, 14, and 18-32 are allowable for at least the reason that they depend directly or indirectly from one of the independent claims 1, 9, and 16 and therefore contain the same allowable features. Therefore, since all the pending claims are allowable over the cited references, Applicant respectfully requests that the Examiner kindly withdraw the 35 U.S.C. § 103 rejections.

## CLAIMS

Please amend the claims as follows, without prejudice or disclaimer to continued examination on the merits:

1. (Currently Amended) A system for leveling a vehicle, the system comprising:

a sensor device secured to a vehicle to sense an inclination of the vehicle in both a pitch direction and a roll direction when the vehicle is parked on an uneven surface of the ground, the sensor device comprising a printed circuit board that includes:

a digital accelerometer that permits calculation in both the pitch direction and roll direction, and

a processor to process data collected by the digital accelerator; and

a smart device in wireless communication with the sensor device, the smart device including a display screen;

wherein, based on the inclination of the vehicle as sensed by the sensor device, at least one of the sensor device and smart device is configured to determine adjustment pairs, each adjustment pair including a height adjustment ~~amounts~~ amount and a corresponding adjustment direction needed to level a respective section of the vehicle ~~in both the pitch direction and the roll direction~~ by movement of the respective section of the vehicle with respect to the uneven surface of the ground by the height adjustment amount in the corresponding adjustment direction;

wherein the display device of the smart device is configured to display at least one image representative of the vehicle ~~on the display screen~~ and showing the respective sections of the vehicle and to simultaneously display the height adjustment amount and corresponding adjustment direction of each adjustment pair adjacent to each respective section of the vehicle shown in the at least one image; and

~~wherein the smart device is further configured to simultaneously display a plurality of adjustment indicators based onthe height adjustment amounts on the display screen, each adjustment indicator showing an amount of adjustment in height with respect to the ground needed at a respective section of the vehicle to level the vehicle in at least one of the pitch direction and roll direction; and~~

wherein the smart device is further configured to update the display screen, substantially in real time, as one or more of the height adjustment amounts are changed.

2-6. (Cancelled)

7. (Original) The system according to claim 1, wherein the smart device and the sensor device communicate with each other through a wireless connection and the smart device is configured to receive a serial number of the sensor device so that the smart device communicates with the particular sensor device.

8. (Cancelled)

9. (Currently Amended) A method for leveling a recreational vehicle, the method comprising:

sensing an inclination of the recreational vehicle in both a pitch direction and a roll direction when the recreational vehicle is parked on an uneven surface of the ground;

based on the sensed inclination of the recreational vehicle, determining adjustment pairs, each adjustment pair including a height adjustment ~~amounts~~ amount and a corresponding adjustment direction needed to level a respective section of the recreational vehicle ~~in both the pitch direction and roll direction~~ by movement of the respective section of the recreational vehicle with respect to the uneven surface of the ground by the height adjustment amount in the corresponding adjustment direction;

displaying at least one image, representative of the recreational vehicle and showing the respective sections of the recreational vehicle, on a display screen of a smart device;

simultaneously displaying ~~a plurality of adjustment indicators~~ the height adjustment amount and corresponding adjustment direction of each adjustment pair on the display screen adjacent to each respective section of the recreational vehicle in the at least one image, ~~the adjustment indicators related to the height adjustment amounts needed to level the recreational vehicle, each adjustment indicator showing an amount of adjustment in height with respect to the ground needed at a respective section of the recreational vehicle to level the recreational vehicle in at least one of the pitch direction and roll direction~~; and

updating the display screen, essentially in real time, as the height adjustment amounts are changed.

10-13. (Cancelled)

14. (Previously Presented) The method according to claim 9, wherein the step of sensing the inclination of the recreational vehicle in both a pitch direction and a roll direction is performed by a corresponding sensor device, and wherein the smart device and the corresponding sensor device communicate with each other through a wireless connection, the method further comprising storing a serial number of the corresponding sensor device in the smart device so that the smart device communicates with the corresponding sensor device.

15. (Cancelled)

16. (Currently Amended) A non-transitory computer readable medium comprising computer executable instructions that, when executed by a processor of a smart device, control the smart device to perform steps comprising:

receiving a pitch angle measurement and a roll angle measurement of a vehicle from a sensor device secured to the vehicle when the vehicle is parked on an uneven surface of the ground;

based on the pitch angle measurement and roll angle measurement, calculating ~~in both the pitch direction and the roll direction for determining the~~ adjustment pairs, each adjustment pair include a height adjustment amount and a corresponding adjustment direction needed ~~to adjust the vehicle~~ to level the vehicle ~~in both the pitch direction and the roll direction~~ by movement of the respective section of the vehicle with respect to the uneven surface of the ground by the height adjustment amount in the corresponding adjustment direction; and

displaying, on a display screen of the smart device, at least one image representative of the vehicle and showing the respective sections of the recreational vehicle;

simultaneously displaying, on the display screen of the smart device, ~~a plurality of adjustment indicators based on the adjustment in height to the vehicle to obtain a level position of the vehicle in the pitch direction and the roll direction, each adjustment indicator showing an~~


**ETN1003**
**501/642**

~~amount of adjustment in height with respect to the ground needed at a respective section of the vehicle to level the vehicle in at least one of the pitch direction and roll direction~~ the height adjustment amount and corresponding adjustment direction of each adjustment pair adjacent to each respective section of the vehicle in the at least one image; and

updating the display screen of the smart device, essentially in real time, as the height needed to adjust the vehicle to level the vehicle changes.

17. (Cancelled)

18. (Previously Presented) The non-transitory computer readable medium according to claim 16, wherein the step of displaying the adjustment in height comprises the step of displaying, on the display screen of the smart device, the needed adjustment in height of at least one portion of a frame of the vehicle at or near at least one wheel position of the vehicle.

19. (Previously Presented) The system according to claim 1, wherein the adjustment indicators show the adjustments in height to at least one part of a frame of the vehicle located at or near at least one of four wheels of the vehicle.

20. (Previously Presented) The system according to claim 1, wherein the smart device is further configured to display on the display screen near-real-time height adjustments remaining that are needed to level the vehicle when the vehicle is in the process of being leveled.

21. (Previously Presented) The system according to claim 19, wherein the smart device is configured to calculate a first adjustment in height to level the vehicle in the pitch direction and a second adjustment in height to level the vehicle in the roll direction, and wherein the smart device is further configured to calculate the adjustments in height to the at least one part of the frame of the vehicle by adding the first adjustment with the second adjustment.

22. (Previously Presented) The system according to claim 21, wherein:

the at least one part of the frame includes a first part located at or near a front driver-side wheel, a second part located at or near a back driver-side wheel, a third part located at or near a front passenger-side wheel, and a fourth part located at or near a back passenger-side wheel;

an adjustment in height, if any, to the first part includes combining a rearward pitch adjustment of the first adjustment with a right roll adjustment of the second adjustment;

an adjustment in height, if any, to the second part includes combining a forward pitch adjustment of the first adjustment with the right roll adjustment of the second adjustment;

an adjustment in height, if any, to the third part includes combining the rearward pitch adjustment of the first adjustment with a left roll adjustment of the second adjustment; and

an adjustment in height, if any, to the fourth part includes combining the forward pitch adjustment of the first adjustment with the left roll adjustment of the second adjustment.

23. (Previously Presented) The system according to claim 1, further comprising a temperature calibration lookup table, wherein the smart device is configured to correct the height adjustment amounts based on current temperature readings and information from the temperature calibration lookup table.

24. (Previously Presented) The method according to claim 9, further comprising:

calculating a first adjustment in height to level the vehicle in the pitch direction;

calculating a second adjustment in height to level the vehicle in the roll direction;

calculating any needed adjustment in height to a first part of the frame located at or near a front driver-side wheel by combining a rearward pitch adjustment of the first adjustment and a right roll adjustment of the second adjustment;

calculating any needed adjustment in height to a second part of the frame located at or near a rear driver-side wheel by combining a forward pitch adjustment of the first adjustment and the right roll adjustment of the second adjustment;

calculating any needed adjustment in height to a third part of the frame located at or near a front passenger-side wheel by combining the rearward pitch adjustment of the first adjustment and a left roll adjustment of the second adjustment; and

calculating any needed adjustment in height to a fourth part of the frame located at or near a rear passenger-side wheel by combining the forward pitch adjustment of the first adjustment and the left roll adjustment of the second adjustment.

25. (Previously Presented) The method according to claim 9, further comprising the step of displaying on the display screen near-real-time height adjustments remaining that are needed to level the vehicle when the vehicle is in the process of being leveled.

26. (Previously Presented) The method according to claim 9, further comprising the step of correcting the height adjustment amounts based on current temperature readings and information from a temperature calibration lookup table.

27. (Previously Presented) The non-transitory computer readable medium according to claim 16, wherein the computer executable instructions, when executed, further control the smart device to:

calculate a first adjustment in height to level the vehicle in the pitch direction and a second adjustment in height to level the vehicle in the roll direction; and

calculate adjustments in height to each of at least one part of a frame of the vehicle by combining the first adjustment with the second adjustment.

28. (Previously Presented) The non-transitory computer readable medium according to claim 27, wherein the at least one part of the frame includes a first part located at or near a front driver-side wheel, a second part located at or near a back driver-side wheel, a third part located at or near a front passenger-side wheel, and a fourth part located at or near a back passenger-side wheel, and wherein the computer executable instructions, when executed, further control the smart device to:

calculate any needed adjustment in height to the first part by combining a rearward pitch adjustment of the first adjustment with a right roll adjustment of the second adjustment;

calculate any needed adjustment in height to the second part by combining a forward pitch adjustment of the first adjustment with the right roll adjustment of the second adjustment;

calculate any needed adjustment in height to the third part by combining the rearward pitch adjustment of the first adjustment with a left roll adjustment of the second adjustment; and

calculate any needed adjustment in height to the fourth part by combining the forward pitch adjustment of the first adjustment with the left roll adjustment of the second adjustment.

29. (Previously Presented) The non-transitory computer readable medium according to claim 16, wherein the computer executable instructions, when executed, further control the smart device to display, in near real time, height adjustments that are remaining for leveling the vehicle during a vehicle leveling process.

30. (Previously Presented) The non-transitory computer readable medium according to claim 16, wherein the computer executable instructions, when executed, further control the smart device to correct the adjustments in height based on current temperature readings and information from a temperature calibration lookup table.

31. (Previously Presented) The system according to claim 1, wherein the vehicle includes four wheels, and wherein at least one of the sensor device and smart device is configured to determine, based on the height needed to level the vehicle in both the pitch direction and the roll direction, adjustments in height to at least one of four parts of a frame of the vehicle, the four parts of the frame located at or near the four wheels of the vehicle.

32. (Previously Presented) The system according to claim 1, wherein the information sensed by the sensor device regarding the inclination of the vehicle in both the pitch direction and the roll direction is processed to determine an amount of adjustment in height to a rear section or front section of the vehicle needed to level the vehicle in the pitch direction and to determine an amount of adjustment in height to a first side section or a second side section of the vehicle needed to level the vehicle in the roll direction.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | |
|---|---|
| Inventor(s) | Charles A. LEONARD |
| Application No. | 15/619,261 |
| Filing Date | June 9, 2017 |
| Title | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| Examiner | MARTINEZ BORRERO, Luis A. |
| Art Unit | 3665 |
| Confirmation No. | 2353 |

Commissioner for Patents
Via EFS-Web

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## AMENDMENT AND RESPONSE TO FINAL OFFICE ACTION AND ADVISORY ACTION WITH REQUEST FOR CONTINUED EXAMINATION

In response to the Final Office Action dated April 28, 2020 and the Advisory Action dated July 27, 2020, rejecting claims 1, 7, 9, 14, 16, and 18-32 of the above-referenced Application, in which claims 1, 7, 9, 14, 16, and 18-32 remain pending, Applicant requests entry of the corresponding Request for Continued Examination (RCE) and respectfully requests that the following amendments be entered and remarks be considered, without prejudice or disclaimer to continued examination on the merits. In view of these amendments and remarks, Applicant submits that the Application is now in condition for allowance and respectfully requests such action.

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**AMENDMENTS TO THE CLAIMS** begin on page 2; and

**APPLICANT ARGUMENTS/REMARKS MADE** begin on page 9.

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 15619261 |
| **Filing Date:** | 09-Jun-2017 |
| **Title of Invention:** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| **First Named Inventor/Applicant Name:** | Charles A. Leonard |
| **Filer:** | Seth Lee Hudson/Teresa Bush-Dugar |
| **Attorney Docket Number:** | 7137CIP |

Filed as Small Entity

**Filing Fees for Utility under 35 USC 111(a)**

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | |
| **Extension-of-Time:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| Extension - 1 month with $0 paid | 2251 | 1 | 100 | 100 |
| **Miscellaneous:** | | | | |
| | | | **Total in USD ($)** | **100** |

# Electronic Acknowledgement Receipt

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|---|---|
| **EFS ID:** | 40411029 |
| **Application Number:** | 15619261 |
| **International Application Number:** | |
| **Confirmation Number:** | 2353 |
| **Title of Invention:** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| **First Named Inventor/Applicant Name:** | Charles A. Leonard |
| **Customer Number:** | 22474 |
| **Filer:** | Seth Lee Hudson/Teresa Bush-Dugar |
| **Filer Authorized By:** | Seth Lee Hudson |
| **Attorney Docket Number:** | 7137CIP |
| **Receipt Date:** | 28-AUG-2020 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 12:13:57 |
| **Application Type:** | Utility under 35 USC 111(a) |

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| Submitted with Payment | yes |
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| Payment was successfully received in RAM | $100 |
| RAM confirmation Number | E20208RC14113025 |
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| 1 | Fee Worksheet (SB06) | fee-info.pdf | 30777<br>011a4812970f5b270847796c5375f6f6656f5138 | no | 2 |

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# NOTICE OF ALLOWANCE AND FEE(S) DUE

22474 7590 09/23/2020

Clements Bernard Walker
4500 Cameron Valley Parkway
Suite 350
Charlotte, NC 28211

| EXAMINER | |
|---|---|
| MARTINEZ BORRERO, LUIS A | |
| ART UNIT | PAPER NUMBER |
| 3665 | |

DATE MAILED: 09/23/2020

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/619,261 | 06/09/2017 | Charles A. Leonard | 7137CIP | 2353 |

TITLE OF INVENTION: VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | SMALL | $500 | $0.00 | $0.00 | $500 | 12/23/2020 |

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

**HOW TO REPLY TO THIS NOTICE:**

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

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22474 7590 09/23/2020

Clements Bernard Walker
4500 Cameron Valley Parkway
Suite 350
Charlotte, NC 28211

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| (Typed or printed name) |
| (Signature) |
| (Date) |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/619,261 | 06/09/2017 | Charles A. Leonard | 7137CIP | 2353 |

TITLE OF INVENTION: VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | SMALL | $500 | $0.00 | $0.00 | $500 | 12/23/2020 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|---|---|---|
| MARTINEZ BORRERO, LUIS A | 3665 | 701-025000 |

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❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
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3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

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(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____



ETN1003
512/642

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/619,261 | 06/09/2017 | Charles A. Leonard | 7137CIP | 2353 |

22474 7590 09/23/2020

Clements Bernard Walker
4500 Cameron Valley Parkway
Suite 350
Charlotte, NC 28211

| EXAMINER | |
|---|---|
| MARTINEZ BORRERO, LUIS A | |
| ART UNIT | PAPER NUMBER |
| 3665 | |

DATE MAILED: 09/23/2020

**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

| *Notice Requiring Inventor's Oath or Declaration* | Application No.<br>15/619,261 | Applicant(s)<br>Charles A. Leonard | |
|---|---|---|---|
| | Examiner<br>MARTINEZ BORRERO, LUIS A | Art Unit<br>3665 | |

This notice is an attachment to the Notice of Allowability (PTOL-37), or the Notice of Allowability For A Design Application (PTOL-37D).

An inventor's oath or declaration in compliance with 37 CFR 1.63 or 1.64 executed by or with respect to each inventor has not yet been submitted.

An oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each inventor (for any inventor for which a compliant oath, declaration, or substitute statement has not yet been submitted) MUST be filed no later than the date on which the issue fee is paid. See 35 U.S.C. 115(f). Failure to timely comply will result in ABANDONMENT of this application.

A properly executed inventor's oath to declaration has not been received for the following inventor(s):

If applicant previously filed one or more oaths, declarations, or substitute statements, applicant may have received an informational notice regarding deficiencies therein.

The following deficiencies are noted:

INFORMAL ACTION PROBLEMS

- A properly executed inventor's oath or declaration has not been received for the following inventor(s): **Charles A. Leonard**.
  Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s) Due, PTOL-85, is mailed.

Questions relating to this Notice should be directed to the Application Assistance Unit at 571-272-4200.

## OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

## Privacy Act Statement

**The Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

| Notice of Allowability | Application No. 15/619,261 | Applicant(s) Leonard, Charles A. | |
|---|---|---|---|
| | Examiner LUIS A MARTINEZ BORRERO | Art Unit 3665 | AIA (FITF) Status Yes |

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to RCE filed 08/28/2020.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ 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.

3. ☑ The allowed claim(s) is/are See Continuation Sheet . As a result of the allowed claim(s), 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.**

4. ☐ 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)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   **Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☑ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

| /HUNTER B LONSBERRY/<br>Supervisory Patent Examiner, Art Unit 3665 | /L.A.M/<br>Examiner, Art Unit 3665 |
|---|---|

Continuation of 3. The allowed claim(s) is/are: 1,7,9,14,16 and 18-32

### *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.

### *Status of Claims*

2. This Office Action is in response to the applicant's RCE filed on August 28, 2020.

Claims **1, 7, 9, 14, 16,** and **18-32** have been allowed for the reasons set forth below.

### *Response to Amendment*

3. Applicant's response after the final rejection of the last Office Action is persuasive, and the final rejection is withdrawn.

### *Allowable Subject Matter*

4. Claims **1, 7, 9, 14, 16,** and **18-32** are allowed over the prior art of record. The following is a statement of reasons for the indication of allowable subject matter:

5. The closest prior art of record is Thorpe et al., U.S. Patent Application Publication No. US 2008/0142768, in view of Luk et al., U.S. Patent Application Publication No 2012/0197587, Further in view of Zhong et al., U.S. Patent No 10,086,954 hereinafter Thorpe, Luk, and Zhong respectively.

6. Regarding independent claims **1**, Thorpe discloses a system for leveling a vehicle, the system comprising: a sensor device secured to a vehicle to sense an inclination of the vehicle in

both a pitch direction and a roll direction when the vehicle is parked on an uneven surface of the ground, the sensor device comprising a printed circuit board that includes: a digital accelerometer that permits calculation in both the pitch direction and roll direction, and a processor to process data collected by the digital accelerator; and a smart device in wireless communication with the sensor device, the smart device including a display screen.

7. Luk teaches a smart device.

8. Zhong teaches display at least one image representative of the vehicle.

9. Regarding independent claim **1,** the closest prior art of record taken either individually or in combination with other prior art of record fails to disclose, suggest, or teach:

*Wherein the display device of the smart device is configure to display at least one image representative of the vehicle and showing the respective sections of the vehicle and to simultaneously display the height adjustment amount and corresponding adjustment direction of each adjustment pair adjacent to each respective section of the vehicle shown in at least one image; and wherein the smart device is further configured to update the display screen, substantially in real time, as one or more of the height adjustment amounts are changed.*

10. Claims **7, 19-23** and **31-32** depend from claim **1** and are therefore allowable.

11. Regarding independent claims **9,** Thorpe discloses a method for leveling a recreational vehicle, the method comprising: sensing an inclination of the recreational vehicle in both a pitch direction and a roll direction when the recreational vehicle is parked on an uneven surface of the ground.

12. Luk teaches a smart device.

13. Zhong teaches display at least one image representative of the vehicle.

14. Regarding independent claim **9,** the closest prior art of record taken either individually or in combination with other prior art of record fails to disclose, suggest, or teach:

*determining adjustment pairs, each adjustment pair including a height adjustment amount and a corresponding adjustment direction needed to level a respective section of the recreational vehicle by movement of the respective section…simultaneously displaying the height adjustment amount and corresponding adjustment direction of each adjustment pair on the display screen adjacent to each respective section of the recreational vehicle in the at least one image; and updating the display screen, essentially in real time, as the height adjustment amounts are changed.*

15. Claims **14** and **24-26** depend from claim **9** and are therefore allowable.

16. Regarding independent claims **16,** Thorpe discloses a non-transitory computer readable medium comprising computer executable instructions that, when executed by a processor of a smart device, control the smart device to perform steps comprising: receiving a pitch angle measurement and a roll angle measurement of a vehicle from a sensor device secured to the vehicle when the vehicle is parked on an uneven surface of the ground; based on the pitch angle measurement and roll angle measurement, calculating adjustment.

17. Luk teaches a smart device.

18. Zhong teaches display at least one image representative of the vehicle.

19. Regarding independent claim **16,** the closest prior art of record taken either individually or in combination with other prior art of record fails to disclose, suggest, or teach:

*simultaneously displaying, on the display screen of the smart device, the height adjustment amount and corresponding adjustment direction of each adjustment pair adjacent to each respective section of the vehicle in the at least one image; and updating the display screen of the smart device, essentially in real time, as the height needed to adjust the vehicle to level the vehicle changes.*

20. Claims **18,** and **27-30** depend from claim **16** and are therefore allowable.

21. 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 LUIS A MARTINEZ BORRERO whose email is luis.martinezborrero@uspto.gov and telephone number is (571)272-4577. The examiner can normally be reached on M-F 8:00-5:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, HUNTER LONSBERRY can be reached on (571) 272-7298. 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 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.

/L.A.M/
Examiner, Art Unit 3665

/HUNTER B LONSBERRY/
Supervisory Patent Examiner, Art Unit 3665

| Notice of References Cited | Application/Control No. 15/619,261 | Applicant(s)/Patent Under Reexamination Leonard, Charles A. | |
|---|---|---|---|
| | Examiner LUIS A MARTINEZ BORRERO | Art Unit 3665 | Page 1 of 4 |

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| * | F | US-7025361-B1 | 04-2006 | Erickson; John Scott | B60S9/02 | 280/6.153 |
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| * | M | US-20120197587-A1 | 08-2012 | Luk; Yiu Wah | B60W40/09 | 702/141 |

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**NON-PATENT DOCUMENTS**

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| Notice of References Cited | Application/Control No. 15/619,261 | Applicant(s)/Patent Under Reexamination Leonard, Charles A. | |
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| | Examiner LUIS A MARTINEZ BORRERO | Art Unit 3665 | Page 2 of 4 |

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| * | D | US-8209086-B2 | 06-2012 | Ohashi; Hideki | B60G17/04 | 701/37 |
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| * | H | US-9223302-B2 | 12-2015 | Maurer; Garrett | B60S9/02 | 1/1 |
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| Notice of References Cited | Application/Control No. 15/619,261 | Applicant(s)/Patent Under Reexamination Leonard, Charles A. | |
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| | Examiner LUIS A MARTINEZ BORRERO | Art Unit 3665 | Page 3 of 4 |

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| * | I | US-20150352956-A1 | 12-2015 | MIUCHI; Yosuke | B60W40/10 | 701/41 |
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| Notice of References Cited | Application/Control No. 15/619,261 | Applicant(s)/Patent Under Reexamination Leonard, Charles A. | |
|---|---|---|---|
| | Examiner LUIS A MARTINEZ BORRERO | Art Unit 3665 | Page 4 of 4 |

**U.S. PATENT DOCUMENTS**

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| * | B | US-6266590-B1 | 07-2001 | Kutscher; Eberhard | B60G17/0155 | 280/124.157 |
| * | C | US-4396202-A | 08-1983 | Kami; Yozo | B60G11/58 | 267/64.16 |
| * | D | US-20190079508-A1 | 03-2019 | Gingold; Herbert Ross | G05D1/0891 | 1/1 |
| * | E | US-20090005930-A1 | 01-2009 | Koebrick; Arthur W. | B60P3/36 | 701/36 |
| * | F | US-5136784-A | 08-1992 | Marantz; Jacob J. | G01C9/06 | 33/333 |
| | G | | | | | |
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**FOREIGN PATENT DOCUMENTS**

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Country | Name | CPC Classification |
|---|---|---|---|---|---|---|
| | N | | | | | |
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**NON-PATENT DOCUMENTS**

| * | | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
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| | U | |
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

| Issue Classification | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/619,261 | Leonard, Charles A. |
| | **Examiner** | **Art Unit** |
| | LUIS A MARTINEZ BORRERO | 3665 |

| CPC | | | | | | |
|---|---|---|---|---|---|---|
| **Symbol** | | | | | **Type** | **Version** |
| G05D | / | 1 | / | 0891 | F | 2013-01-01 |
| G05D | / | 1 | / | 0016 | I | 2013-01-01 |
| G07C | / | 5 | / | 0808 | I | 2013-01-01 |
| G07C | / | 5 | / | 008 | I | 2013-01-01 |
| B62D | / | 1 | / | 00 | I | 2013-01-01 |
| H04W | / | 84 | / | 18 | A | 2013-01-01 |
| G05D | / | 2201 | / | 0213 | A | 2013-01-01 |

| CPC Combination Sets | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Symbol** | | | | | **Type** | **Set** | **Ranking** | **Version** |
| | / | | / | | | | | |

| /LUIS A MARTINEZ BORRERO/<br>Examiner, Art Unit 3665 | 18 September 2020 | **Total Claims Allowed:** | |
|---|---|---|---|
| (Assistant Examiner) | (Date) | 20 | |
| /HUNTER B LONSBERRY/<br>Supervisory Patent Examiner, Art Unit 3665 | 18 September 2020 | O.G. Print Claim(s) | O.G. Print Figure |
| (Primary Examiner) | (Date) | 1 | 1 |

| Issue Classification | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/619,261 | Leonard, Charles A. |
| | **Examiner** | **Art Unit** |
| | LUIS A MARTINEZ BORRERO | 3665 |

| INTERNATIONAL CLASSIFICATION | | | | |
|---|---|---|---|---|
| **CLAIMED** | | | | |
| G05D1/08 | / | 1 | / | 08 |
| G05D1/00 | / | 1 | / | 00 |
| G07C5/08 | / | 5 | / | 08 |
| G07C5/00 | / | 5 | / | 00 |
| B62D1/00 | / | 1 | / | 00 |
| H04W84/18 | / | 84 | / | 18 |

| NON-CLAIMED | | | | |
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| US ORIGINAL CLASSIFICATION | |
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| **CLASS** | **SUBCLASS** |
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| CROSS REFERENCES(S) | | | | | | |
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| **CLASS** | **SUBCLASS (ONE SUBCLASS PER BLOCK)** | | | | | |
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| /LUIS A MARTINEZ BORRERO/<br>Examiner, Art Unit 3665 | 18 September 2020 | **Total Claims Allowed:** | |
|---|---|---|---|
| (Assistant Examiner) | (Date) | 20 | |
| /HUNTER B LONSBERRY/<br>Supervisory Patent Examiner, Art Unit 3665 | 18 September 2020 | O.G. Print Claim(s) | O.G. Print Figure |
| (Primary Examiner) | (Date) | 1 | 1 |

| Issue Classification | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/619,261 | Leonard, Charles A. |
| | **Examiner** | **Art Unit** |
| | LUIS A MARTINEZ BORRERO | 3665 |

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

**CLAIMS**

| Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original |
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| 1 | 1 | 10 | 9 | 19 | 29 | | | | | | | | | | |
| 2 | 7 | 11 | 14 | 20 | 30 | | | | | | | | | | |
| 3 | 19 | 12 | 24 | | | | | | | | | | | | |
| 4 | 21 | 13 | 25 | | | | | | | | | | | | |
| 5 | 22 | 14 | 26 | | | | | | | | | | | | |
| 6 | 20 | 15 | 16 | | | | | | | | | | | | |
| 7 | 23 | 16 | 18 | | | | | | | | | | | | |
| 8 | 31 | 17 | 27 | | | | | | | | | | | | |
| 9 | 32 | 18 | 28 | | | | | | | | | | | | |

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| /LUIS A MARTINEZ BORRERO/<br>Examiner, Art Unit 3665 | 18 September 2020 | **Total Claims Allowed:** | |
| (Assistant Examiner) | (Date) | 20 | |
| /HUNTER B LONSBERRY/<br>Supervisory Patent Examiner, Art Unit 3665 | 18 September 2020 | O.G. Print Claim(s) | O.G. Print Figure |
| (Primary Examiner) | (Date) | 1 | 1 |

| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/619,261 | Leonard, Charles A. |
| | Examiner | Art Unit |
| | LUIS A MARTINEZ BORRERO | 3665 |

| CPC - Searched* | | |
|---|---|---|
| **Symbol** | **Date** | **Examiner** |
| G05D1/08, 1/0891, 1/0221, 1/0088, 1/0016, | 12/07/2018 | LAM |
| B60T17/22, 8/171, 2201/04, 7/22, 8/32, | 12/07/2018 | LAM |
| G05D1/0891, 1/0016, | 06/11/2019 | LAM |
| B62D1/00, | 06/11/2019 | LAM |
| G05D 1/0891, 1/0016, 1/0011, | 11/12/2019 | LAM |
| B62D37/00, 55/075, 57/02, | 11/12/2019 | LAM |
| G05D1/0891, 1/0088, 2201/0213, 1/0061, | 04/17/2020 | LAM |
| B60W2420/42, 2520/14, 30/02, 10/20, | 04/17/2020 | LAM |
| B60T2201/04, 7/12, 8/171, 8/1761, | 04/17/2020 | LAM |
| G05D1/0891, 1/0016, 2201/0213, 1/0061, | 09/18/2020 | LAM |
| B60T2201/04, 7/12, 8/171, 13/662, | 09/18/2020 | LAM |

| CPC Combination Sets - Searched* | | |
|---|---|---|
| **Symbol** | **Date** | **Examiner** |
| | | |

| US Classification - Searched* | | | |
|---|---|---|---|
| **Class** | **Subclass** | **Date** | **Examiner** |
| | | | |

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

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| | /L.A.M/<br>Examiner, Art Unit 3665 |



ETN1003

531/642

| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/619,261 | Leonard, Charles A. |
| | **Examiner** | **Art Unit** |
| | LUIS A MARTINEZ BORRERO | 3665 |

| **Search Notes** | | |
|---|---|---|
| **Search Notes** | **Date** | **Examiner** |
| East Search | 12/07/2018 | LAM |
| Google Patent Search | 12/07/2018 | LAM |
| East Search | 06/11/2019 | LAM |
| East Search | 11/12/2019 | LAM |
| East Search | 04/17/2020 | LAM |
| Consulted patentability with primary Frederick Brushaber | 04/17/2020 | LAM |
| East Search | 09/18/2020 | LAM |
| Consulted with supervisor Hunter Lonsberry | 09/18/2020 | LAM |
| Google Patents | 09/18/2020 | LAM |

| **Interference Search** | | | |
|---|---|---|---|
| **US Class/CPC Symbol** | **US Subclass/CPC Group** | **Date** | **Examiner** |
| G05D | 1/0891, 1/0016, 2201/0213, 1/0061, | 09/18/2020 | LAM |
| B60T | 2201/04, 7/12, 8/171, 13/662, | 09/18/2020 | LAM |

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| | /L.A.M/<br>Examiner, Art Unit 3665 |


ETN1003
532/642

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# BIB DATA SHEET

**CONFIRMATION NO. 2353**

| SERIAL NUMBER | FILING or 371(c) DATE<br>RULE | CLASS | GROUP ART UNIT | ATTORNEY DOCKET NO. |
|---|---|---|---|---|
| 15/619,261 | 06/09/2017 | 701 | 3665 | 7137CIP |

**APPLICANTS**

**INVENTORS**

Charles A. Leonard, Hickory, NC;

**** CONTINUING DATA ***************************

This application is a CIP of 14/961,787 12/07/2015 ABN
which claims benefit of 62/088,115 12/05/2014
and claims benefit of 62/101,109 01/08/2015

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
06/22/2017

| Foreign Priority claimed ☐ Yes ☑ No<br>35 USC 119(a-d) conditions met ☐ Yes ☑ No<br>Verified and Acknowledged /LUIS A MARTINEZ BORRERO/ Examiner's Signature | ☐ Met after Allowance<br>Initials | STATE OR COUNTRY | SHEETS DRAWINGS | TOTAL CLAIMS | INDEPENDENT CLAIMS |
|---|---|---|---|---|---|
| | | NC | 15 | 20 ~~18~~ | 3 |

**ADDRESS**

Clements Bernard Walker
4500 Cameron Valley Parkway
Suite 350
Charlotte, NC 28211
UNITED STATES

**TITLE**

VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES

| FILING FEE RECEIVED | | |
|---|---|---|
| 800 | FEES: Authority has been given in Paper<br>No._____ to charge/credit DEPOSIT ACCOUNT<br>No._____ for following: | ☐ All Fees<br>☐ 1.16 Fees (Filing)<br>☐ 1.17 Fees (Processing Ext. of time)<br>☐ 1.18 Fees (Issue)<br>☐ Other _____<br>☐ Credit |



**ETN1003**
**533/642**

**EAST Search History**

**EAST Search History (Prior Art)**

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| S1 | 1,584 | ((vehicle or car or automobile) near4(level$4)) and ((sens$4 or detect$3)near5 (inclinat$4)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 22:52 |
| S2 | 486 | S1 AND ( (G05D1/0088 OR G05D2201/0213 OR G05D1/0061 OR G05D1/0223 OR G05D1/0257 OR G05D1/0016 OR G05D1/0891 OR G05D1/0011 OR G05D1/0055 OR G05D1/0094 OR G05D1/02 OR G05D1/0214 OR G05D1/0221 OR G05D1/0274 OR G05D1/0278 OR G05D1/12 OR G05D2201/0201 OR G05D2201/0208 OR G05D2201/0215 OR B60T2201/04 OR B60T7/12 OR B60T8/171 OR B60T13/662 OR B60T17/22 OR B60T2201/022 OR B60T2201/06 OR B60T2260/06 OR B60T7/122 OR B60T7/22 OR B60T8/245 OR B60T1/062 OR B60T2210/36 OR B60T2220/04 OR B60T7/042 OR B60T8/32 OR B60T8/3205 OR B60T13/74 OR B60T13/741 OR B60T1/005 OR B60T2201/09 OR B60T2201/10 OR B60T2210/14 OR B60T2210/16 OR B60T2230/03 OR B60T2230/04 OR B60T2270/89 OR B60T7/085 OR B60T7/20 OR B60T8/17 OR B60T8/1706 OR B60T8/172 OR B60T8/175 OR B60T8/17552 OR B60T8/17616 OR B60T8/3215 OR B60T8/4827 OR B60T8/52).CPC. OR (1/1 OR 348/148 OR 600/479 OR 701/41).CCLS. OR (G05D1/00 OR G05D1/02 OR G05D1/08 OR G05D1/12 OR B60T8/32 OR B60T7/12 OR B60T8/24 OR B60T13/66 OR B60T8/171 OR B60T13/74 OR B60T17/22 OR B60T1/00 OR B60T7/20 OR | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 22:53 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | B60T8/172 OR B60T8/175 OR B60T8/1755 OR B60T8/1761 OR B60T8/48).IPCR. ) | | | | |
| S3 | 94 | S2 and inclinat$3 and sensor and pitch and roll | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 22:54 |
| S4 | 4 | ((vehicle or car or automobile) near4(level$4)) with ((sens$4 or detect$3)near5 (inclinat$4)) with (accelerometer or gyroscope) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 22:55 |
| S5 | 11 | ("20070180719" \| "20080142768" \| "3657695" \| "4547972" \| "4760649" \| "6037874" \| "6397133" \| "7025361" \| "7743520" \| "7786883" \| "8083015").PN. OR ("9421907").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 22:56 |
| S6 | 22 | ("3739364" \| "4085375").PN. OR ("4547972").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 22:59 |
| S7 | 17 | ("3861052" \| "3916531" \| "4182046" \| "4492029" \| "4584778" \| "4658508").PN. OR ("4760649").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 22:59 |
| S8 | 43 | ("4912662" \| "5083383" \| "5168632" \| "5259118" \| "5313713" \| "5410532" \| "5479715" \| "5488779" \| "5680208" \| "5689330").PN. OR ("6037874").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 22:59 |
| S9 | 14 | ("5176391" \| "5890721" \| "5915700" \| "6176495" \| "6351696" \| "6584385").PN. OR ("7025361").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 22:59 |
| S10 | 25 | ("20060064888" \| "3233235" \| "3324564" \| "3657551" \| "4154000" \| "4467527" \| "4625423" \| "4658508" \| "5136784" \| "5784794" \| "6526668" \| "6836972" \| "6981333").PN. OR ("7743520").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 23:00 |
| S11 | 33 | ("20060100979" \| "20070180719" \| "20070245579" \| "20080142768" \| "2155876" \| "3181203" \| "3258884" | US-PGPUB; USPAT; USOCR | OR | OFF | 2018/12/06 23:00 |

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|---|---|---|---|---|---|---|
| | | \| "3260564" \| "3417518" \| "3866365" \| "4232488" \| "4568096" \| "4572527" \| "4743037" \| "4746133" \| "4784400" \| "5078442" \| "5136784" \| "5159989" \| "5176391" \| "5188379" \| "5676385" \| "5806196" \| "6176495" \| "6526668" \| "7025361").PN. OR ("7786883").URPN. | | | | |
| S12 | 0 | ((vehicle or car or automobile) near4(level$4)) with ((sens$4 or detect$3)near5 (inclinat$4)) with (accelerometer or gyroscope) with ((smart adj device) or d evice or phone or cell or cellphone) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:02 |
| S13 | 33,690 | ((vehicle or car or automobile) near4 (level$4)) and ((smart adj device) or phone or cell or cellphone or mobile) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:05 |
| S14 | 10,900 | S13 AND ( (G05D1/0088 OR G05D1/0891).CPC. OR (1/1).CCLS. OR (G05D1/02 OR G05D1/00 OR G05D1/08).IPCR. ) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:06 |
| S15 | 799 | S14 and sensor and pitch and roll | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:07 |
| S16 | 457 | S15 and (( sens$3 or determin$3 or detect$3) near5 (inclination or orientation)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:08 |
| S17 | 149 | S16 and accelerometer and gyroscope | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | OFF | 2018/12/06 23:09 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| S18 | 47 | S17 and ((adjust$3) near5 (level$3 or inclination or tilt)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:10 |
| S19 | 2,615 | (pitch near3 roll) with level$3 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:12 |
| S20 | 349 | S19 and (axis near3 accelerometer) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:12 |
| S21 | 204 | S20 and ((adjust$3 or alter$3 or chang$3 or modif$4) near3 (level$3 or orientation or inclination)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:13 |
| S22 | 18 | ((pitch near3 roll) near6 (axis near3 accelerometer)) with (vehicle car or automobile) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:14 |
| S23 | 0 | (tri-axial) with accelerometer with 1evel$3 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:16 |
| S24 | 52 | (tri-axial) with accelerometer with level$3 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; | OR | OFF | 2018/12/06 23:17 |

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|---|---|---|---|---|---|---|
| | | | DERWENT; IBM_TDB | | | |
| S25 | 124 | (tri-axial) with accelerometer with (temperature adj sensor) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:18 |
| S26 | 57 | ((tri-axial) near3 accelerometer) near6(temperature adj sensor) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/06 23:18 |
| S27 | 14 | "4935883" | USPAT | OR | OFF | 2018/12/06 23:21 |
| S28 | 1 | "20120197587" | US-PGPUB | OR | OFF | 2018/12/06 23:22 |
| S29 | 1 | "20120208520" | US-PGPUB | OR | OFF | 2018/12/06 23:23 |
| S30 | 410 | ((("LEONARD") near3 ("Charles"))).INV. | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT | OR | OFF | 2018/12/06 23:26 |
| S31 | 1,718 | G05D1/0891.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:29 |
| S32 | 657 | B62D1/00.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:29 |
| S33 | 3,389 | G05D1/0016.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:29 |

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| S34 | 11,555 | ((temperature adj sensor) NEAR5 (GYRO OR ACCELEROMETER)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:31 |
| S35 | 1 | S31 and S34 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:31 |
| S36 | 2 | S32 and S34 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:31 |
| S37 | 16 | S33 and S34 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/06/11 23:31 |
| S38 | 154 | ("20080059068" \| "20090265193" \| "20100012776" \| "20100215212" \| "20100228418" \| "20100268409" \| "20100286859" \| "20110270470" \| "20120170797" \| "20120197461" \| "20120250010" \| "20120271461" \| "20130206915" \| "20130216089" \| "20130238168" \| "20140061376" \| "20140259549" \| "20140267627" \| "20140277842" \| "20140316614" \| "20140316616" \| "20140324405" \| "20140336928" \| "20150325064" \| "20150343644" \| "20150344136" \| "20150377405" \| "20160004795" \| "20160176542" \| "4818990" \| "5575438" \| "7400384" \| "7496226" \| "7872794" \| "7929125" \| "8060270" \| "8207484" \| "8212995" \| "8346578" \| "8818572" \| "8830485" \| "8872818" \| "8874283" \| "8896819" \| "8997362" \| "9009000" \| "9129355" \| "9152863" \| "9162753" \| "9256225" \| | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/06/11 23:32 |

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| | | "9256994" \| "9273981" \| "9310221" \| "9329599" \| "9340283" \| "9403593" \| "9406237").PN. OR ("2012/0194551" \| "9609288").URPN. | | | | |
| S39 | 1 | ("9008860").PN. OR ("9483050").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/06/11 23:32 |
| S40 | 1 | ("20160314621").PN. OR ("9760089").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/06/11 23:32 |
| S41 | 1 | "20120197587" | US-PGPUB | OR | OFF | 2019/06/11 23:33 |
| S42 | 18 | "8239162" | US-PGPUB; USPAT | OR | OFF | 2019/06/11 23:34 |
| S43 | 1 | "20080142768" | US-PGPUB; USPAT | OR | OFF | 2019/06/11 23:35 |
| S44 | 412 | ((("LEONARD") near3 ("Charles"))).INV. | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT | OR | OFF | 2019/06/11 23:35 |
| S45 | 2 | S44 and S31 | US-PGPUB; USPAT | OR | OFF | 2019/06/11 23:35 |
| S46 | 650,123 | G05D 1/0016.cpc | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/11 21:20 |
| S47 | 650,123 | G05D 1/0891.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/11 21:20 |
| S48 | 447 | ((vehicle or car or automobile) near4 (level$4)) and ((sens$4 or detect$3) near5 (inclinat$4)) and (accelerometer or gyroscope) and ((smart adj device) or device or phone cell or cellphone) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/11 21:20 |
| S49 | 24 | S46 and S48 | US-PGPUB; USPAT; USOCR; | OR | ON | 2019/11/11 21:21 |

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| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB | | | |
| S50 | 8 | ("20070083318" \| "20080059007" \| "20100131168" \| "20100161173" \| "6067031" \| "6285929" \| "6301530").PN. OR ("9187095").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/11/11 21:21 |
| S51 | 3 | ("20090142173" \| "20090143985" \| "5572449").PN. OR ("10093309").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/11/11 21:22 |
| S52 | 20 | S49 and ((smart adj device) or phone or cell or cellphone or pda or (personal adj computer)) | US-PGPUB; USPAT; USOCR | OR | ON | 2019/11/11 21:22 |
| S53 | 24 | S47 and S48 | US-PGPUB; USPAT; USOCR | OR | ON | 2019/11/11 21:23 |
| S54 | 20 | S53 and ((smart adj device) or phone or cell or cellphone or pda or (personal adj computer)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/11 21:23 |
| S55 | 546 | ((sens$4 or detect$3) near5 (pitch and roll)) with level$3 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/11/12 12:02 |
| S56 | 0 | ((sens$4 or detect$3) near5 (pitch and roll)) with level$3 with trailer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/12 12:04 |
| S57 | 4 | ((sens$4 or detect$3) near5 (pitch and roll)) same level$3 same trailer | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/12 12:05 |
| S58 | 20 | ((("Leonard") near3 ("Charles") near3 ("A"))).INV. | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/11/12 12:07 |

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|---|---|---|---|---|---|---|
| S59 | 246 | S55 AND ( (G05D1/0891 OR G05D1/0011 OR G05D1/0016 OR G05D1/0038 OR G05D2201/0202 OR G05D2201/0213 OR G05D1/0027 OR G05D1/021 OR G05D1/0225 OR G05D1/042 OR G05D1/0808 OR G05D1/102 OR B62D37/00 OR B62D55/00 OR B62D55/075 OR B62D57/02 OR B62D11/001 OR B62D1/00).CPC. OR (1/1 OR 701/1 OR 701/2 OR 701/31.5 OR 701/31.9 OR 701/45 OR 701/21 OR 701/33.4 OR 701/34.4 OR 701/409 OR 701/41 OR 701/420 OR 701/49 OR 701/50 OR 702/150 OR 702/154 OR 702/175 OR 73/504.12 OR 73/198 OR 123/519 OR 280/728.3 OR 700/258 OR 700/275 OR 700/83 OR 705/7.32).CCLS. OR (G05D1/00 OR G05D1/08 OR G05D1/02 OR G05D1/04 OR G05D1/10 OR B62D37/00 OR B62D55/00 OR B62D55/075 OR B62D57/02 OR B62D11/00).IPCR. ) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2019/11/12 12:10 |
| S60 | 74 | S59 and ((vehicle or car or automobile or truck or van or trailer) near4 (level$4)) and ((smart adj device) or phone or cell or cellphone or mobile) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/12 12:20 |
| S61 | 33 | S60 and ((pitch near5 roll) near6 level$3) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2019/11/12 12:22 |
| S62 | 32 | ("20030135312" \| "20050067227" \| "20050073141" \| "20050140759" \| "20060226612" \| "20070088275" \| "20070249990" \| "20090137943" \| "20100185139" \| "20130240812" \| "20140214283" \| "20160075311" \| "20180127249" \| "3592443" \| "4084830" \| "4216939" \| "4735603" \| "5143386" \| "6250650" \| "6584385" \| "6632194" \| "6634461" \| "7182752" \| "7193381" \| "7199534" \| "7208896" \| "7250035" | US-PGPUB; USPAT; USOCR | OR | OFF | 2019/11/12 12:23 |

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|---|---|---|---|---|---|---|
| | | \| "7285112" \| "7338473" \| "7413559" \| "7854724" \| "9114684").PN. OR ("10427654").URPN. | | | | |
| S63 | 930 | display with (vehicle or car or automobile) with (adjust$4) with height | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/14 18:00 |
| S64 | 10 | display$3 with (vehicle or car or automobile) with (adjust$4) with height with (pitch or roll) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/14 18:01 |
| S65 | 3 | display$3 with (vehicle or car or automobile) with (adjust$4) with height with (pitch or roll) with wheel | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:04 |
| S66 | 246 | display$3 with (vehicle or car or automobile) with (adjust$4) with height with wheel | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:05 |
| S67 | 16 | S66 and pitch and roll | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:06 |
| S68 | 8,549 | display$3 with (adjust$4) with wheel | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:09 |
| S69 | 5,060,596 | display$3 with (adjust$4) with wheeland height | US-PGPUB; USPAT; USOCR; FPRS; EPO; | OR | ON | 2020/04/14 18:10 |

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|---|---|---|---|---|---|---|
| | | | JPO; DERWENT; IBM_TDB | | | |
| S70 | 1,280 | display$3 with (adjust$4) with wheel with height | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:10 |
| S71 | 1,923 | G05D1/0891.cpc. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:11 |
| S72 | 1 | S70 and S71 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:11 |
| S73 | 515 | S71 AND ( (B60W2420/42 OR B60W2520/14 OR B60W30/02 OR B60W10/20 OR B60W2520/10 OR B60W2520/16 OR B60W2520/18 OR B60W2554/00 OR B60W2720/10 OR B60W2420/52 OR B60W2556/50 OR B60W2710/207 OR B60W30/06 OR B60W30/09 OR B60W40/10 OR B60W40/105 OR B60W10/04 OR B60W10/06 OR B60W10/08 OR B60W10/18 OR B60W10/184 OR B60W10/22 OR B60W10/30 OR B60W2050/0026 OR B60W2050/143 OR B60W2050/146 OR B60W2300/12 OR B60W2300/36 OR B60W2420/40 OR B60W2420/54 OR B60W2420/62 OR B60W2420/905 OR B60W2422/90 OR B60W2510/18 OR B60W2510/20 OR B60W2520/06 OR B60W2520/125 OR B60W2520/20 OR B60W2530/145 OR B60W2530/18 OR B60W2530/20 OR B60W2540/18 OR B60W2556/45 OR B60W2556/60 OR B60W2710/0666 OR B60W2710/083 OR B60W2710/18 OR B60W2710/182 OR B60W2710/22 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/14 18:12 |

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|---|---|---|---|---|---|---|
| | | OR B60W2720/00 OR B60W2720/14 OR B60W2720/16 OR B60W2720/24 OR B60W30/025 OR B60W30/045 OR B60W30/08 OR B60W30/085 OR B60W30/095 OR B60W30/10 OR B60W30/143 OR B60W30/18109 OR B60W40/00 OR B60W40/068 OR B60W40/09 OR B60W40/112 OR B60W40/114 OR B60W50/0098 OR B60W50/0205 OR B60W50/14).CPC. OR (1/1).CCLS. OR (B60W30/02 OR B60W30/06 OR B60W10/04 OR B60W10/06 OR B60W10/08 OR B60W10/184 OR B60W10/20 OR B60W10/30 OR B60W30/04 OR B60W30/09 OR B60W30/10 OR B60W30/14 OR B60W30/18 OR B60W40/068 OR B60W40/10 OR B60W50/02 OR B60W50/14).IPCR. ) | | | | |
| S74 | 108 | S73 and ((smart adj device) or phone or cell or cellphone or pda or (personal adj computer)) | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/14 18:13 |
| S75 | 1,728 | wheel with display with height | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/15 16:40 |
| S76 | 1,796 | ((vehicle or car or automobile) near4(level$4)) and ((sens$4 or detect$3)near5 (inclinat$4)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/15 16:40 |
| S77 | 7 | S75 and S76 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/15 16:41 |
| S78 | 5 | ("6898501" \| "7316406" \| "7434816").PN. OR ("8209086").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2020/04/15 16:57 |
| S79 | 39 | ("20020030586" \| "20020180172" \| "5259017" \| "6293562" \| "7025361").PN. OR ("7316406").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2020/04/15 17:00 |

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|---|---|---|---|---|---|---|
| S80 | 14 | ("5176391" \| "5890721" \| "5915700" \| "6176495" \| "6351696" \| "6584385").PN. OR ("7025361").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2020/04/15 17:03 |
| S81 | 0 | display$3 with (actual or current) with lavel$3 with each with wheel | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/15 17:12 |
| S82 | 0 | display$3 with (actual or current) with lavel$3 with wheel | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/15 17:12 |
| S83 | 105 | display$3 with (actual or current) with level$3 with wheel | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/15 17:12 |
| S84 | 0 | display$3 with (actual or current) with level$3 with each with wheel | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/15 17:12 |
| S85 | 279 | display$3 with level$3 with wheel with (status or condition) | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/15 17:18 |
| S86 | 331 | display$3 with level$3 with wheel with (status or condition) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/15 17:18 |
| S87 | 331 | display$3 with level$3 with wheels with (status or condition) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/15 17:18 |
| S88 | 56 | display$3 with (car or vehicle or atomobile) with image with level$3 with wheels with (status or condition) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/15 17:23 |
| S89 | 92 | display$3 with (car or vehicle or atomobile) with image with level$3 with wheels | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/15 17:24 |

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|---|---|---|---|---|---|---|
| S90 | 227 | display$3 with (car or vehicle or atomobile) with image with (adjust$4 or chang$3 or modificat$4 or alter$5) with level$3 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/15 17:29 |
| S91 | 574 | display with image with (vehicle or uav or drone) with level | US-PGPUB; USPAT; USOCR | OR | OFF | 2020/04/15 17:37 |
| S92 | 0 | disply$3 with image with (vehicle or uav or drone) with level$3 | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/15 17:38 |
| S93 | 998 | display$3 with image with (vehicle or uav or drone) with level$3 | US-PGPUB; USPAT; USOCR | OR | ON | 2020/04/15 17:38 |
| S94 | 611 | S93 AND ( (G05D1/0088 OR G05D2201/0213 OR G05D1/0061 OR G05D1/0223 OR G05D1/0257 OR G05D1/0016 OR G05D1/0891 OR G05D1/0011 OR G05D1/0055 OR G05D1/0094 OR G05D1/02 OR G05D1/0214 OR G05D1/0221 OR G05D1/0274 OR G05D1/0278 OR G05D1/12 OR G05D2201/0201 OR G05D2201/0208 OR G05D2201/0215 OR B60T2201/04 OR B60T7/12 OR B60T8/171 OR B60T13/662 OR B60T17/22 OR B60T2201/022 OR B60T2201/06 OR B60T2260/06 OR B60T7/122 OR B60T7/22 OR B60T8/245 OR B60T1/062 OR B60T2210/36 OR B60T2220/04 OR B60T7/042 OR B60T8/32 OR B60T8/3205 OR B60T13/74 OR B60T13/741 OR B60T1/005 OR B60T2201/09 OR B60T2201/10 OR B60T2210/14 OR B60T2210/16 OR B60T2230/03 OR B60T2230/04 OR B60T2270/89 OR B60T7/085 OR B60T7/20 OR B60T8/17 OR B60T8/1706 OR B60T8/172 OR B60T8/175 OR B60T8/17552 OR B60T8/17616 OR B60T8/3215 OR B60T8/4827 OR B60T8/52).CPC. OR (1/1 OR 348/148 OR 600/479 OR 701/41).CCLS. OR (G05D1/00 OR G05D1/02 OR G05D1/08 OR G05D1/12 OR B60T8/32 OR B60T7/12 OR B60T8/24 OR | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/15 17:39 |

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|---|---|---|---|---|---|---|
| | | B60T13/66 OR B60T8/171 OR B60T13/74 OR B60T17/22 OR B60T1/00 OR B60T7/20 OR B60T8/172 OR B60T8/175 OR B60T8/1755 OR B60T8/1761 OR B60T8/48).IPCR. ) | | | | |
| S95 | 219 | S94 and ((adjust$3 or alter$3 or chang$3 or modif$4) near3 (level$3 or orientation or inclination)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/15 17:40 |
| S96 | 4,835,545 | display with wheel woth height | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2020/04/15 18:12 |
| S97 | 2,073 | display with wheel with height | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/15 18:13 |
| S98 | 209 | indicator with display with pitch with roll | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/16 17:21 |
| S99 | 35 | S98 and (simultaneously near5 display$4) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/16 17:24 |
| S100 | 40 | display with image with inclination with wheel | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2020/04/16 17:41 |
| S101 | 2 | "20150352956" | US-PGPUB; USPAT | OR | ON | 2020/04/16 17:48 |

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|---|---|---|---|---|---|---|
| S102 | 28 | ("20030080877" \| "20050280514" \| "20060287826" \| "20070182537" \| "20080215223" \| "20090112389" \| "20090261957" \| "20100164702" \| "20100289634" \| "20100302018" \| "20100321176" \| "20110069169" \| "20110087415" \| "20110090074" \| "20120072097" \| "20120218295" \| "20140277943" \| "20150203035" \| "20160042238" \| "6352318" \| "6785404" \| "7683771" \| "7954951" \| "8045003" \| "8103410" \| "8598999" \| "8633811").PN. OR ("9701199").URPN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2020/04/16 17:48 |
| S103 | 1 | S102 and inclination | US-PGPUB; USPAT; USOCR | OR | OFF | 2020/04/16 17:52 |

**EAST Search History (Interference)**

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| L1 | 1,499 | ((vehicle or car or automobile) near4(level$4)) and ((sens$4 or detect$3)near5 (inclinat$4)) | US-PGPUB; USPAT | OR | ON | 2020/09/18 13:47 |
| L2 | 735 | 1 AND ( (G05D1/0088 OR G05D2201/0213 OR G05D1/0061 OR G05D1/0223 OR G05D1/0257 OR G05D1/0016 OR G05D1/0891 OR G05D1/0011 OR G05D1/0055 OR G05D1/0094 OR G05D1/02 OR G05D1/0214 OR G05D1/0221 OR G05D1/0274 OR G05D1/0278 OR G05D1/12 OR G05D2201/0201 OR G05D2201/0208 OR G05D2201/0215 OR B60T2201/04 OR B60T7/12 OR B60T8/171 OR B60T13/662 OR B60T17/22 OR B60T2201/022 OR B60T2201/06 OR B60T2260/06 OR B60T7/122 OR B60T7/22 OR B60T8/245 OR B60T1/062 OR B60T2210/36 OR B60T2220/04 OR B60T7/042 OR B60T8/32 OR B60T8/3205 OR B60T13/74 OR B60T13/741 OR B60T1/005 OR B60T2201/09 OR B60T2201/10 OR B60T2210/14 OR B60T2210/16 OR B60T2230/03 OR B60T2230/04 OR B60T2270/89 OR B60T7/085 OR B60T7/20 OR B60T8/17 OR B60T8/1706 OR B60T8/172 OR B60T8/175 OR B60T8/17552 OR B60T8/17616 OR B60T8/3215 OR B60T8/4827 OR B60T8/52).CPC. OR (1/1 OR 348/148 OR 600/479 OR 701/41).CCLS. OR (G05D1/00 | US-PGPUB; USPAT | OR | ON | 2020/09/18 13:49 |

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|---|---|---|---|---|---|---|
| | | OR G05D1/02 OR G05D1/08 OR G05D1/12 OR B60T8/32 OR B60T7/12 OR B60T8/24 OR B60T13/66 OR B60T8/171 OR B60T13/74 OR B60T17/22 OR B60T1/00 OR B60T7/20 OR B60T8/172 OR B60T8/175 OR B60T8/1755 OR B60T8/1761 OR B60T8/48).IPCR. ) | | | | |
| L3 | 44 | 2 AND ((DISPLAY OR IMAGE) NEAR4 (INCLINATION)) | US-PGPUB; USPAT | OR | ON | 2020/09/18 13:51 |
| L4 | 44 | 2 AND ((DISPLAY$3 OR IMAGE) NEAR4 (INCLINATION)) | US-PGPUB; USPAT | OR | ON | 2020/09/18 13:53 |
| L5 | 2 | ("20030154792" \| "5933112").PN. OR ("9348012").URPN. | US-PGPUB; USPAT | OR | OFF | 2020/09/18 13:56 |
| L6 | 166 | indicator with display with pitch with roll | US-PGPUB; USPAT | OR | ON | 2020/09/18 14:17 |
| L7 | 41 | 6 AND ((vehicle or car or automobile OR MACHINE OR DEVICE) near4(level$4)) | US-PGPUB; USPAT | OR | ON | 2020/09/18 14:44 |
| L8 | 23 | 7 AND ((vehicle or car or automobile OR MACHINE OR DEVICE) near4(IMAGE)) | US-PGPUB; USPAT | OR | ON | 2020/09/18 14:45 |
| L9 | 31 | ("20020087296" \| "20030211806" \| "20060091258" \| "20060102798" \| "20060223637" \| "20070243505" \| "20080147366" \| "20090069957" \| "20130066550" \| "20140018979" \| "20140032034" \| "20140113255" \| "20140221061" \| "20140222248" \| "20140257596" \| "20140263823" \| "20150002391" \| "20150064658" \| "20150199086" \| "20150298017" \| "20150302756" \| "5947824" \| "6527225" \| "7970532" \| "8068983" \| "8195025" \| "8239047" \| "8874283" \| "8942964" \| "8954853").PN. OR ("10086954").URPN. | US-PGPUB; USPAT | OR | OFF | 2020/09/18 14:47 |
| L10 | 23 | ("10017919" \| "20080180523" \| "20090177337" \| "20100299031" \| "20120201640" \| "20130004282" \| "20130180744" \| "20140176709" \| "20140257732" \| "20140326471" \| "20140330508" \| "20150292179" \| "20160010312" \| "20160196769" \| "20160230367" \| "20190024346" \| "6097425" \| "6230818" \| "8139108" \| "8347977" \| "8924098" \| "9322147" \| "9359083").PN. OR ("10544566").URPN. | US-PGPUB; USPAT | OR | OFF | 2020/09/18 14:56 |

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|---|---|---|---|---|---|---|
| L11 | 13 | display$3 with (height adj adjustment) with (vehicle or car or automobile OR MACHINE OR DEVICE) with level$3 | US-PGPUB; USPAT | OR | ON | 2020/09/18 14:58 |
| L12 | 28 | ("2936611" \| "3510143" \| "3747949" \| "4015859" \| "4396202" \| "4422661").PN. OR ("4709934").URPN. | US-PGPUB; USPAT | OR | OFF | 2020/09/18 14:59 |
| L13 | 92 | ("20020084599" \| "20020116104" \| "20040094913" \| "20040176889" \| "20050021205" \| "20050098964" \| "20050280219" \| "20060012144" \| "20060047387" \| "20060048976" \| "20060081420" \| "20060104766" \| "20070113070" \| "20070180719" \| "20080100021" \| "20080142768" \| "20080315538" \| "20090001679" \| "20090085309" \| "20090138126" \| "20090248247" \| "20090314566" \| "20100100280" \| "20100123568" \| "20100230876" \| "20100308291" \| "20110024706" \| "20110169231" \| "20120053788" \| "20120116634" \| "20120306170" \| "20130030650" \| "20130304327" \| "20140265170" \| "20140288776" \| "20140297116" \| "20150006027" \| "3603613" \| "3857582" \| "4017099" \| "4061309" \| "4105216" \| "4164664" \| "4391452" \| "4572527" \| "4709934" \| "4743037" \| "4746133" \| "4784400" \| "4887359" \| "5143386" \| "5159989" \| "5188379" \| "5580095" \| "5676385" \| "5865453" \| "5890721" \| "5901969" \| "5915700" \| "6050573" \| "6161844" \| "6176495" \| "6446980" \| "6584385" \| "6848693" \| "6885924" \| "6918600" \| "7000927" \| "7025178" \| "7025361" \| "7029014" \| "7226057" \| "7287760" \| "7389994" \| "7407189" \| "7607667" \| "7644938" \| "7706942" \| "7744099" \| "7926600" \| "7962261" \| "8028783" \| "8191874" \| "8195361" \| "8244440" \| "8655577").PN. OR ("9223302").URPN. | US-PGPUB; USPAT | OR | OFF | 2020/09/18 15:01 |
| L14 | 29 | ("4629212" \| "4647069" \| "4696483" \| "4709934" \| "4733876" \| "4834088" \| "4865349" \| "4934731" \| "5193849" \| "5600953" \| "5697635" \| "5711150" \| "5743553").PN. OR ("6266590").URPN. | US-PGPUB; USPAT | OR | OFF | 2020/09/18 15:11 |
| L15 | 41,306 | ((vehicle or car or automobile) near4 (level$4)) and ((smart adj device) or phone or cell or cellphone or mobile) | US-PGPUB; USPAT | OR | OFF | 2020/09/18 16:00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| L16 | 21,070 | 15 AND ( (G05D1/0088 OR G05D1/0891).CPC. OR (1/1).CCLS. OR (G05D1/02 OR G05D1/00 OR G05D1/08).IPCR. ) | US-PGPUB; USPAT | OR | ON | 2020/09/18 16:01 |
| L17 | 21,070 | 15 AND ( (G05D1/0088 OR G05D1/0891).CPC. OR (1/1).CCLS. OR (G05D1/02 OR G05D1/00 OR G05D1/08).IPCR. ) | US-PGPUB; USPAT | OR | ON | 2020/09/18 16:01 |
| L18 | 1,583 | 17 and sensor and pitch and roll | US-PGPUB; USPAT | OR | OFF | 2020/09/18 16:04 |
| L19 | 841 | 18 and (( sens$3 or determin$3 or detect$3) near5 (inclination or orientation)) | US-PGPUB; USPAT | OR | OFF | 2020/09/18 16:04 |
| L20 | 424 | 19 and ((adjust$3 or alter$3 or chang$3 or modif$4) near3 (level$3 or orientation or inclination)) | US-PGPUB; USPAT | OR | OFF | 2020/09/18 16:06 |
| L21 | 155 | 20 and G05D 1/0891.cpc. | US-PGPUB; USPAT | OR | ON | 2020/09/18 16:07 |
| L22 | 153 | 21 AND ( (G05D1/0088 OR G05D2201/0213 OR G05D1/0246 OR G05D1/0214 OR G05D1/0055 OR G05D1/0221 OR G05D1/0253 OR G05D1/0231 OR G05D2201/0201 OR G05D1/0094 OR G05D1/0274 OR G05D1/0016 OR G05D1/0808 OR G05D1/0858 OR G05D2201/0202 OR G05D1/0891 OR G05D1/042 OR G05D1/08 OR G05D1/0011 OR G05D1/0278 OR G05D1/027 OR G05D1/0816 OR G05D1/0287 OR G05D2201/02 OR G05D1/0038 OR G05D1/0206 OR G05D1/0223 OR G05D1/0276 OR G05D1/00 OR G05D1/0061 OR G05D1/0202 OR G05D1/0212 OR G05D1/024 OR G05D1/0251 OR G05D1/0257 OR G05D1/085 OR G05D1/0238 OR G05D1/0242 OR G05D1/028 OR G05D1/0297 OR G05D1/0692 OR G05D1/0833 OR G05D1/101 OR G05D1/102 OR G05D2201/0212 OR G05D1/0022 OR G05D1/0027 OR G05D1/0044 OR G05D1/005 OR G05D1/021 OR G05D1/0219 OR G05D1/0225 OR G05D1/0248 OR G05D1/0255 OR G05D1/0272 OR G05D1/0291 OR G05D1/0293 OR G05D1/10 OR G05D1/106 OR G05D2201/0207 OR G05D2201/0209 OR G05D2201/0211 OR G05D3/10).CPC. OR (701/2 OR 701/25 OR 701/26 OR 701/41 OR 701/23 OR 701/27 OR | US-PGPUB; USPAT | OR | ON | 2020/09/18 16:08 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 701/28 OR 701/32.4 OR 701/50).CCLS. OR (G05D1/00 OR G05D1/02 OR G05D1/08 OR G05D1/04 OR G05D1/10 OR G05D3/10 OR G05D1/06).IPCR. ) | | | | |
| L23 | 83 | ("0584127" \| "0734109" \| "20020063006" \| "20020121394" \| "20030014167" \| "20040007425" \| "20060249313" \| "20070145697" \| "20100114468" \| "20100168993" \| "3145797" \| "3260324" \| "3399742" \| "3446304" \| "3580344" \| "4062558" \| "4088199" \| "4094372" \| "4151892" \| "4222449" \| "4293052" \| "4354569" \| "4373600" \| "4560022" \| "4566707" \| "4571844" \| "4624469" \| "4657272" \| "4709772" \| "4716980" \| "4790548" \| "4794999" \| "4809804" \| "4834200" \| "4998596" \| "5221883" \| "5248007" \| "5314034" \| "5366036" \| "5439240" \| "5487441" \| "5701965" \| "5701968" \| "5791425" \| "5971091" \| "5973463" \| "5975225" \| "6003624" \| "6050357" \| "6059062" \| "6223104" \| "6225977" \| "6288505" \| "6302230" \| "6311794" \| "6332103" \| "6538411" \| "6553271" \| "6571892" \| "6581714" \| "6789640" \| "7004271").PN. OR ("9126497").URPN. | US-PGPUB; USPAT | OR | OFF | 2020/09/18 16:44 |
| L24 | 287 | ((("LEONARD") near3 ("Charles"))).INV. | US-PGPUB; USPAT | OR | OFF | 2020/09/18 16:44 |
| L25 | 3 | 24 and (recreational adj vehicle) | US-PGPUB; USPAT | OR | OFF | 2020/09/18 16:45 |
| L26 | 380 | (level$3 near5 (recreational adj vehicle)) | US-PGPUB; USPAT | OR | ON | 2020/09/18 16:46 |
| L27 | 30 | 26 AND ((DISPLAY OR IMAGE) NEAR8 (sens$3)) | US-PGPUB; USPAT | OR | ON | 2020/09/18 16:47 |
| L28 | 28 | ("20060100979" \| "20070180719" \| "20070245579" \| "20080142768" \| "2155876" \| "3181203" \| "3258884" \| "3260564" \| "3417518" \| "3866365" \| "4232488" \| "4568096" \| "4572527" \| "4743037" \| "4746133" \| "4784400" \| "5078442" \| "5136784" \| "5159989" \| "5176391" \| "5188379" \| "5676385" \| "5806196" \| "6176495" \| "6526668" \| "7025361").PN. OR ("7786883").URPN. | US-PGPUB; USPAT | OR | OFF | 2020/09/18 16:50 |

| | | | | | | |
|---|---|---|---|---|---|---|
| L29 | 30 | ("1884728" \| "2772411" \| "2971264" \| "4429470" \| "4561188" \| "4658508" \| "4760649").PN. OR ("5136784").URPN. | US-PGPUB; USPAT | OR | OFF | 2020/09/18 16:51 |

9/18/2020 4:53:24 PM
C:\Users\lmartinezborrero\Documents\EAST\Workspaces\15619261.wsp

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# DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

| | |
|---|---|
| **Title of Invention** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 15/619,261

filed on June 9, 2017.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

## WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Charles A. LEONARD Date (Optional): 12/1/20

Signature:

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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## Privacy Act Statement

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# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 41268526 |
| **Application Number:** | 15619261 |
| **International Application Number:** | |
| **Confirmation Number:** | 2353 |
| **Title of Invention:** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| **First Named Inventor/Applicant Name:** | Charles A. Leonard |
| **Customer Number:** | 22474 |
| **Filer:** | Christopher L. Bernard/Staci Passafiume |
| **Filer Authorized By:** | Christopher L. Bernard |
| **Attorney Docket Number:** | 7137CIP |
| **Receipt Date:** | 02-DEC-2020 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 09:34:58 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | no |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Oath or Declaration filed | 7137CIP_Dec.pdf | 162593<br>0ed510a3a1d25f9b4425a53af139703884bca61a | no | 1 |

**Warnings:**

ETN1003

| Information: | |
|---|---|
| Total Files Size (in bytes): | 162593 |

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**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

DocuSign Envelope ID: BC378C0C-D44F-4B3C-953D-B49F6601FCE8

PTO/AIA/80 (07-17)
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# POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

[X] Practitioners associated with Customer Number: 153900

**OR**

[ ] Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

| Name | Registration Number |
|---|---|
| | |
| | |
| | |
| | |
| | |

| Name | Registration Number |
|---|---|
| | |
| | |
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| | |
| | |

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

[X] The address associated with Customer Number: 153900

**OR**

[ ]

| | | |
|---|---|---|
| Firm or individual name | | |
| Address | | |
| City | State | Zip |
| Country | | |
| Telephone | Email | |

Assignee name and address: Command Electronics, LLC
1230 19th Street Lane NW
Hickory, North Carolina 28601-4671

**A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.**

**SIGNATURE of Assignee of Record**

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

| | |
|---|---|
| Signature DocuSigned by: Chuck Leonard D8BE535E5AA148F... | Date 12/4/2020 |
| Name Charles A. Leonard | Telephone 855-549-8199 |
| Title President | |

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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**ETN1003**
**558/642**

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# Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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# STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Command Electronics, LLC

Application No./Patent No.: 15/619,261 Filed/Issue Date: June 9, 2017

Titled: Vehicle Leveling Systems, Devices and Methods and Computer Program Products For Leveling Vehicles Using Smart Devices

Command Electronics, LLC, a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☑ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 054511, Frame 0970, or for which a copy thereof is attached.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

   1. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

   2. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.



This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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**560/642**

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## STATEMENT UNDER 37 CFR 3.73(c)

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The document was recorded in the United States Patent and Trademark Office at

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☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

| | |
|---|---|
| /Seth L. Hudson/ | 12/04/2020 |
| Signature | Date |
| Seth L. Hudson | 48281 |
| Printed or Typed Name | Title or Registration Number |

# Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 41296621 |
| **Application Number:** | 15619261 |
| **International Application Number:** | |
| **Confirmation Number:** | 2353 |
| **Title of Invention:** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| **First Named Inventor/Applicant Name:** | Charles A. Leonard |
| **Customer Number:** | 22474 |
| **Filer:** | Seth Lee Hudson/Teresa Bush-Dugar |
| **Filer Authorized By:** | Seth Lee Hudson |
| **Attorney Docket Number:** | 7137CIP |
| **Receipt Date:** | 04-DEC-2020 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 12:46:39 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | no |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Power of Attorney | 064301_00002_Command_Electronics_LLC_POA.pdf | 621249<br>bfe2b2ace9c7c834e9195946b493a59299b5cf9e | no | 2 |

**Warnings:**

ETN1003

The PDF file has been signed with a digital signature and the legal effect of the document will be based on the contents of the file not the digital signature.

**Information:**

| | | | | | |
|---|---|---|---|---|---|
| 2 | Assignee showing of ownership per 37 CFR 3.73 | Statement_of_37cfr373.pdf | 121906<br>b1a7ebf8b2e4e5d864806e21ae429e876926a69e | no | 3 |

**Warnings:**

**Information:**

| | |
|---|---|
| **Total Files Size (in bytes):** | 743155 |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|---|---|---|---|
| 15/619,261 | 06/09/2017 | Charles A. Leonard | 7137CIP |

**CONFIRMATION NO. 2353**

**IMPROPER CPOA LETTER**

22474
Clements Bernard Walker
4500 Cameron Valley Parkway
Suite 350
Charlotte, NC 28211

*OC000000121843071*

Date Mailed: 12/08/2020

## NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 12/04/2020. The power of attorney in this application is not accepted for the reason(s) listed below:

- The revocation is not signed by the applicant, the assignee of the entire interest, or one particular principal attorney having the authority to revoke.

/tlulu/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

153900
Nexsen Pruet, PLLC (Charlotte Office)
227 West Trade Street
Suite 1550
Charlotte, NC 28202
UNITED STATES



**ETN1003**
**565/642**

DocuSign Envelope ID: BC378C0C-D44F-4B3C-953D-B49F6601FCE8

PTO/AIA/80 (07-17)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it displays a valid OMB control number

# POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

[X] Practitioners associated with Customer Number: 153900

**OR**

[ ] Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

| Name | Registration Number |
|---|---|
| | |
| | |
| | |
| | |
| | |

| Name | Registration Number |
|---|---|
| | |
| | |
| | |
| | |
| | |

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

[X] The address associated with Customer Number: 153900

**OR**

[ ]

| | | |
|---|---|---|
| Firm or individual name | | |
| Address | | |
| City | State | Zip |
| Country | | |
| Telephone | Email | |

Assignee name and address: Command Electronics, LLC
1230 19th Street Lane NW
Hickory, North Carolina 28601-4671

**A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.**

**SIGNATURE of Assignee of Record**

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

| | |
|---|---|
| Signature DocuSigned by: Chuck Leonard D8BE535E5AA148F... | Date 12/4/2020 |
| Name Charles A. Leonard | Telephone 855-549-8199 |
| Title President | |

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

DocuSign Envelope ID: BC378C0C-D44F-4B3C-953D-B49F6601FCE8

# Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 41338206 |
| **Application Number:** | 15619261 |
| **International Application Number:** | |
| **Confirmation Number:** | 2353 |
| **Title of Invention:** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| **First Named Inventor/Applicant Name:** | Charles A. Leonard |
| **Customer Number:** | 22474 |
| **Filer:** | Seth Lee Hudson/Teresa Bush-Dugar |
| **Filer Authorized By:** | Seth Lee Hudson |
| **Attorney Docket Number:** | 7137CIP |
| **Receipt Date:** | 09-DEC-2020 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 15:12:53 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | no |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Application Data Sheet | 7137CIP_Supplemental_ADS.pdf | 831949<br>4eab6f1698bcc1336c435d8c2ae4eaa169f98d27 | no | 6 |

**Warnings:**

ETN1003

| Information: | | | | | |
|---|---|---|---|---|---|
| This is not an USPTO supplied ADS fillable form | | | | | |
| 2 | Assignee showing of ownership per 37 CFR 3.73 | Statement_of_37cfr373.pdf | 121887<br>71265d443f73f11d6190e590d00c238f79abd58a | no | 3 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 3 | Power of Attorney | 064301_00001_Command_Electronics_LLC_POA.pdf | 621249<br>bfe2b2ace9c7c834e9195946b493a59299b5cf9e | no | 2 |
| **Warnings:** | | | | | |
| The PDF file has been signed with a digital signature and the legal effect of the document will be based on the contents of the file not the digital signature. | | | | | |
| **Information:** | | | | | |
| | | | **Total Files Size (in bytes):** | 1575085 | |

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**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

PTO/AIA/14 (07-14)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | ~~LEO-2-CIP~~ 7137CIP |
|---|---|---|
| | Application Number | 15/619,261 |

| Title of Invention | EHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
|---|---|

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

## Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

## Inventor Information:

Inventor 1 — Remove

Legal Name

| Prefix | Given Name | Middle Name | Family Name | Suffix |
|---|---|---|---|---|
| | Charles | A. | Leonard | |

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

| City | Hickory | State/Province | NC | Country of Residence | US |
|---|---|---|---|---|---|

Mailing Address of Inventor:

| Address 1 | 3702 Pinecrest Drive NE |
|---|---|
| Address 2 | |

| City | Hickory | State/Province | NC |
|---|---|---|---|
| Postal Code | 28601 | Country | US |

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add

## Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ An Address is being provided for the correspondence Information of this application.

| Customer Number | 44728 | | |
|---|---|---|---|
| Email Address | docketing@mullinaxpatent.com | Add Email | Remove Email |

## Application Information:

| Title of the Invention | EHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES | | |
|---|---|---|---|
| Attorney Docket Number | LEO-2-CIP | Small Entity Status Claimed | ☒ |
| Application Type | Nonprovisional | | |
| Subject Matter | Utility | | |
| Total Number of Drawing Sheets (if any) | 16 | Suggested Figure for Publication (if any) | |

## Filing By Reference :



ETN1003
570/642

PTO/AIA/14 (07-14)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | 7137CIP |
|---|---|---|
| | Application Number | 15/619,261 |
| Title of Invention | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES | |

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

| Application number of the previously filed application | Filing date (YYYY-MM-DD) | Intellectual Property Authority or Country |
|---|---|---|
| | | |

## Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

## Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

| Please Select One: | ◉ Customer Number | ○ US Patent Practitioner | ○ Limited Recognition (37 CFR 11.9) |
|---|---|---|---|
| Customer Number | 44728 | | |

## Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the application number blank.

| Prior Application Status | Pending | | Remove |
|---|---|---|---|
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) |
| | Continuation in part of | 14/861787 | 2015-12-07 |
| Prior Application Status | Expired | | Remove |
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) |
| 14/961787 | Claims benefit of provisional | 62088115 | 2014-12-05 |
| Prior Application Status | Expired | | Remove |



ETN1003
571/642

PTO/AIA/14 (07-14)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | LEO-3-CIP 7137CIP |
|---|---|---|
| | Application Number | 15/619,261 |

| Title of Invention | EHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
|---|---|

| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) |
|---|---|---|---|
| 14/961787 | Claims benefit of provisional | 62101109 | 2015-01-08 |

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

## Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[1] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

| Application Number | Country[1] | Filing Date (YYYY-MM-DD) | Access Code[1] (if applicable) |
|---|---|---|---|
| | | | |

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

## Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

## Authorization to Permit Access:

☐ Authorization to Permit Access to the Instant Application by the Participating Offices

PTO/AIA/14 (07-14)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | 7137CIP |
|---|---|---|
| | Application Number | 15/619,261 |
| Title of Invention | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES | |

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date o f filing this Authorization.

## Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

**Applicant 1**

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

(X) Assignee ( ) Legal Representative under 35 U.S.C. 117 ( ) Joint Inventor

( ) Person to whom the inventor is obligated to assign. ( ) Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. [X] COMMAND ELECTRONICS, LLC

| Prefix | Given Name | Middle Name | Family Name | Suffix |
|---|---|---|---|---|
| | | | | |

PTO/AIA/14 (07-14)
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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | ~~LEO-2-CIP~~ 7137CIP |
|---|---|---|
| | Application Number | 15/619,261 |

| Title of Invention | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
|---|---|

| Mailing Address Information For Applicant: | | | |
|---|---|---|---|
| Address 1 | 1230 19th Street Lane NW | | |
| Address 2 | | | |
| City | Hickory | State/Province | NC |
| Country | US | Postal Code | 28601 |
| Phone Number | | Fax Number | |
| Email Address | | | |

Additional Applicant Data may be generated within this form by selecting the Add button.

## Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication . An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

| Prefix | Given Name | Middle Name | Family Name | Suffix |
|---|---|---|---|---|
| | | | | |

| Mailing Address Information For Assignee including Non-Applicant Assignees: | | | |
|---|---|---|---|
| Address 1 | | | |
| Address 2 | | | |
| City | | State/Province | |
| Country | | Postal Code | |
| Phone Number | | Fax Number | |
| Email Address | | | |

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | ~~LEO-2-CIP~~ 7137CIP |
|---|---|---|
| | Application Number | 15/619,261 |
| Title of Invention | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES | |

## Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications.

| Signature | /Seth L. Hudson/ | Date (YYYY-MM-DD) | ~~2017-06-09~~ 2020-12-09 |
|---|---|---|---|
| First Name | ~~David~~ Seth | Last Name | ~~Sigmon~~ Hudson |
| Registration Number | ~~62324~~ 48281 | | |

Additional Signature may be generated within this form by selecting the Add button.

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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# STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Command Electronics, LLC

Application No./Patent No.: 15/619,261 Filed/Issue Date: June 9, 2017

Titled: Vehicle Leveling Systems, Devices and Methods and Computer Products For Leveling Vehicles Using Smart Devices

Command Electronics, LLC, a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☑ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 054511, Frame 0970, or for which a copy thereof is attached.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

   1. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

   2. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.



This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

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**576/642**

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## STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

| | |
|---|---|
| /Seth L. Hudson/ | 12/04/2020 |
| Signature | Date |
| Seth L. Hudson | 48281 |
| Printed or Typed Name | Title or Registration Number |

# Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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# POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

[X] Practitioners associated with Customer Number: 153900

**OR**

[ ] Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

| Name | Registration Number |
|---|---|
| | |
| | |
| | |
| | |
| | |

| Name | Registration Number |
|---|---|
| | |
| | |
| | |
| | |
| | |

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

[X] The address associated with Customer Number: 153900

**OR**

[ ]

| | | |
|---|---|---|
| Firm or individual name | | |
| Address | | |
| City | State | Zip |
| Country | | |
| Telephone | Email | |

Assignee name and address: Command Electronics, LLC
1230 19th Street Lane NW
Hickory, North Carolina 28601-4671

**A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.**

**SIGNATURE of Assignee of Record**

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

| | |
|---|---|
| Signature DocuSigned by: Chuck Leonard D8BE535C5AA148F... | Date 12/4/2020 |
| Name Charles A. Leonard | Telephone 855-549-8199 |
| Title President | |

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

**ETN1003**
**579/642**

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# Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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# STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Command Electronics, LLC

Application No./Patent No.: 15/619,261 Filed/Issue Date: June 9, 2017

Titled: Vehicle Leveling Systems, Devices and Methods and Computer Products For Leveling Vehicles Using Smart Devices

Command Electronics, LLC, a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☑ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 054511, Frame 0970, or for which a copy thereof is attached.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

   1. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

   2. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.



This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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**ETN1003**
**581/642**

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## STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

| | |
|---|---|
| /Seth L. Hudson/ | 12/04/2020 |
| Signature | Date |
| Seth L. Hudson | 48281 |
| Printed or Typed Name | Title or Registration Number |



**ETN1003**
**582/642**

# Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | ~~LEO-2-CIP~~ 7137CIP |
|---|---|---|
| | Application Number | 15/619,261 |

| Title of Invention | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
|---|---|

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

## Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

## Inventor Information:

**Inventor 1** Remove

**Legal Name**

| Prefix | Given Name | Middle Name | Family Name | Suffix |
|---|---|---|---|---|
| | Charles | A. | Leonard | |

**Residence Information (Select One)** ◉ US Residency ○ Non US Residency ○ Active US Military Service

| City | Hickory | State/Province | NC | Country of Residence | US |
|---|---|---|---|---|---|

**Mailing Address of Inventor:**

| Address 1 | 3702 Pinecrest Drive NE | | |
|---|---|---|---|
| Address 2 | | | |
| City | Hickory | State/Province | NC |
| Postal Code | 28601 | Country i | US |

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

## Correspondence Information:

**Enter either Customer Number or complete the Correspondence Information section below.**
**For further information see 37 CFR 1.33(a).**

☐ **An Address is being provided for the correspondence Information of this application.**

| Customer Number | ~~44728~~ 153900 | | |
|---|---|---|---|
| Email Address | ~~docketing@mullinexpatent.com~~ uspatent@nexsenpruet.com | Add Email | Remove Email |

## Application Information:

| Title of the Invention | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES | | |
|---|---|---|---|
| Attorney Docket Number | ~~LEO-2-CIP~~ 7137CIP | Small Entity Status Claimed | ☒ |
| Application Type | Nonprovisional | | |
| Subject Matter | Utility | | |
| Total Number of Drawing Sheets (if any) | 15 | Suggested Figure for Publication (if any) | |

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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | ~~LEO-2-CIP~~ 7137CIP |
|---|---|---|
| | Application Number | 15/619,261 |
| Title of Invention | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES | |

## Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

| Application number of the previously filed application | Filing date (YYYY-MM-DD) | Intellectual Property Authority or Country |
|---|---|---|
| | | |

## Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

## Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

| Please Select One: | ◉ Customer Number | ○ US Patent Practitioner | ○ Limited Recognition (37 CFR 11.9) |
|---|---|---|---|
| Customer Number | ~~44728~~ 153900 | | |

## Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

| Prior Application Status | Pending | | Remove |
|---|---|---|---|
| Application Number | Continuity Type | Prior Application Number | Filing or 371(c) Date (YYYY-MM-DD) |
| | Continuation in part of | 14/961787 | 2015-12-07 |

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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | ~~LEO-2-CIP~~ 7137CIP |
|---|---|---|
| | Application Number | 15/619,261 |
| Title of Invention | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES | |

| Prior Application Status | Expired | | Remove |
|---|---|---|---|
| Application Number | Continuity Type | Prior Application Number | Filing or 371(c) Date (YYYY-MM-DD) |
| 14/961787 | Claims benefit of provisional | 62088115 | 2014-12-05 |
| Prior Application Status | Expired | | Remove |
| Application Number | Continuity Type | Prior Application Number | Filing or 371(c) Date (YYYY-MM-DD) |
| 14/961787 | Claims benefit of provisional | 62101109 | 2015-01-08 |

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

## Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

| | | | Remove |
|---|---|---|---|
| Application Number | Country[i] | Filing Date (YYYY-MM-DD) | Access Code[i] (if applicable) |
| | | | |

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

## Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.



**ETN1003**
**586/642**

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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | ~~LEO-2-CIP~~ 7137CIP |
|---|---|---|
| | Application Number | 15/619,261 |
| Title of Invention | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES | |

# Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

**NOTE**: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

**1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)**

**A. Priority Document Exchange (PDX)** - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

**B. Search Results from U.S. Application to EPO** - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

**2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)**

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

**NOTE:** Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | ~~LEO-2-CIP~~ 7137CIP |
|---|---|---|
| | Application Number | 15/619,261 |
| Title of Invention | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES | |

## Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

**Applicant 1**

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

| | | |
|---|---|---|
| (●) Assignee | ( ) Legal Representative under 35 U.S.C. 117 | ( ) Joint Inventor |
| ( ) Person to whom the inventor is obligated to assign. | ( ) Person who shows sufficient proprietary interest | |

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

| | |
|---|---|
| Name of the Deceased or Legally Incapacitated Inventor: | |
| If the Applicant is an Organization check here. | ☒ |
| Organization Name | COMMAND ELECTRONICS, LLC |

**Mailing Address Information For Applicant:**

| | | | |
|---|---|---|---|
| **Address 1** | 1230 19TH STREET LANE NW | | |
| Address 2 | | | |
| **City** | HICKORY | **State/Province** | NC |
| **Country** | US | Postal Code | 28601 |
| Phone Number | | Fax Number | |
| Email Address | | | |

Additional Applicant Data may be generated within this form by selecting the Add button.

## Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | ~~LEO-2-CIP~~ 7137CIP |
|---|---|---|
| | Application Number | 15/619,261 |
| Title of Invention | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES | |

**Assignee 1**

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

| Prefix | **Given Name** | Middle Name | **Family Name** | Suffix |
|---|---|---|---|---|
| | | | | |

**Mailing Address Information For Assignee including Non-Applicant Assignee:**

| | | | |
|---|---|---|---|
| **Address 1** | | | |
| Address 2 | | | |
| **City** | | **State/Province** | |
| **Country** i | | Postal Code | |
| Phone Number | | Fax Number | |
| Email Address | | | |

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

## Signature:

**NOTE:** This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

| **Signature** | /Seth L. Hudson/ | | | Date (YYYY-MM-DD) | 2020-12-09 |
|---|---|---|---|---|---|
| First Name | Seth | Last Name | Hudson | Registration Number | 48281 |

Additional Signature may be generated within this form by selecting the Add button.

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | ~~LEQ-2-CIP~~ 7137CIP |
|---|---|---|
| | Application Number | 15/619,261 |
| Title of Invention | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES | |

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

# Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 41340757 |
| **Application Number:** | 15619261 |
| **International Application Number:** | |
| **Confirmation Number:** | 2353 |
| **Title of Invention:** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| **First Named Inventor/Applicant Name:** | Charles A. Leonard |
| **Customer Number:** | 22474 |
| **Filer:** | Seth Lee Hudson/Teresa Bush-Dugar |
| **Filer Authorized By:** | Seth Lee Hudson |
| **Attorney Docket Number:** | 7137CIP |
| **Receipt Date:** | 09-DEC-2020 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 17:02:20 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | no |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Power of Attorney | 064301_00001_Command_Electronics_LLC_POA.pdf | 621249<br>bfe2b2ace9c7c834e9195946b493a59299b5cf9e | no | 2 |

**Warnings:**

ETN1003

The PDF file has been signed with a digital signature and the legal effect of the document will be based on the contents of the file not the digital signature.

**Information:**

| | | | | | |
|---|---|---|---|---|---|
| 2 | Assignee showing of ownership per 37 CFR 3.73 | Statement_of_37cfr373.pdf | 121887<br>71265d443f73f11d6190e590d00c238f79abd58a | no | 3 |

**Warnings:**

**Information:**

| | | | | | |
|---|---|---|---|---|---|
| 3 | Application Data Sheet | Supplemental_ADS.pdf | 178392<br>7116df04939972c7b10194b7f7250a9a0591cd9b | no | 8 |

**Warnings:**

**Information:**

This is not an USPTO supplied ADS fillable form

| | |
|---|---|
| **Total Files Size (in bytes):** | 921528 |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

Document Description: Issue Fee Payment (PTO-85B)

# Issue Fee Transmittal Form

| Application Number | Filing Date | First Named Inventor | Atty. Docket No. | Confirmation No. |
|---|---|---|---|---|
| 15619261 | 09-Jun-2017 | Charles Leonard | 7137CIP | 2353 |

**TITLE OF INVENTION :**

VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES

| Entity Status | Application Type | Art Unit | Class - Subclass | EXAMINER |
|---|---|---|---|---|
| Small | Utility under 35 USC 111(a) | 3665 | 025000 | LUIS MARTINEZ BORRERO |

| Issue Fee Due | Publication Due | Total Fee(s) Due | Date Due | Prev. Paid Fee |
|---|---|---|---|---|
| $500 | $0 | $500 | 23-Dec-2020 | $0 |

## 1.Change of Correspondence Address and/or Indication Of Fee Address (37 CFR 1.33 & 1.363)

| Current Correspondence Address: | Current Indicated Fee Address : |
|---|---|
| 153900<br>Nexsen Pruet, PLLC (Charlotte Office)<br><br>227 West Trade Street<br>Suite 1550<br>Charlotte NC 28202<br>UNITED STATES<br>704-339-0304<br>SMurphy@NexsenPruet.com | |
| ☐ Change of correspondence address requested, system generated AIA/122-EFS form attached | ☐ Fee Address indication requested, system generated SB/47-EFS form attached |

## 2.Entity Status

**Change in Entity Status**

○ Applicant certifying micro entity status; system generated Micro Entity certification form attached. See 37 CFR 1.29.
Note: Absent a valid certification of micro entity status, issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment. If this box is checked, you will be prompted to choose a micro entity status on the gross income basis (37 CFR 1.29(a)) or the institution of higher education basis (37 CFR 1.29(d)), and make the applicable certification online.

◉ Applicant asserting small entity status. See 37 CFR 1.27.
Note: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

○ Applicant changing to regular undiscounted fee status.
Note: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

Doc Code: IFEE PTOL/85B-EFS

Document Description: Issue Fee Payment (PTO-85B)

**3.The Following Fee(s) Are Submitted:**

☒ Issue Fee

☐ I authorize USPTO to apply my previously paid issue fee to the current fees due

☐ Publication Fee

☐ The Director is hereby authorized to apply my previously paid issue fee to the current fee due and to charge deficient fees to Deposit Account Number _____

☐ Advance Order - # of copies _____

☐ If **in addition to** the payment of the issue fee amount submitted with this form, there are any discrepancies in any amount(s) due, the Director is authorized to charge any deficiency, or credit any overpayment, to Deposit Account Number _____ . The **issue fee must be submitted** with this form. **If payment of the issue fee does not accompany this form, checking this box and providing a deposit account number will NOT be effective to satisfy full payment of the fee(s) due.**

**4.Firm and/or Attorney Names To Be Printed**

**NOTE: If no name is listed, no name will be printed**
For printing on the patent front page, list to be displayed as entered

1. NEXSEN PRUET, PLLC
2. SETH HUDSON
3.

**5.Assignee Name(s) and Residence Data To Be Printed**

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

| Name | City | State | Country | Category |
|---|---|---|---|---|
| Command Electronics, LLC | Hickory | NORTH CAROLINA | united states | corporation |

**6.Signature**

I certify, in accordance with 37 CFR 1.4(d)(4) that I am an attorney or agent registered to practice before the Patent and Trademark Office who has filed and has been granted power of attorney in this application. I also certify that this Fee(s) Transmittal form is being transmitted to the USPTO via EFS-WEB on the date indicated below.

| | | | |
|---|---|---|---|
| **Signature** | /Seth L. Hudson/ | **Date** | 12-10-2020 |
| **Name** | Seth Lee Hudson | **Registration Number** | 48281 |

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 15619261 |
| **Filing Date:** | 09-Jun-2017 |
| **Title of Invention:** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| **First Named Inventor/Applicant Name:** | Charles A. Leonard |
| **Filer:** | Seth Lee Hudson/Teresa Bush-Dugar |
| **Attorney Docket Number:** | 7137CIP |

Filed as Small Entity

**Filing Fees for Utility under 35 USC 111(a)**

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| UTILITY APPL ISSUE FEE | 2501 | 1 | 500 | 500 |
| PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL | 1504 | 1 | 0 | 0 |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Post-Allowance-and-Post-Issuance:** | | | | |
| **Extension-of-Time:** | | | | |
| **Miscellaneous:** | | | | |
| | | | **Total in USD ($)** | **500** |

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 41351898 |
| **Application Number:** | 15619261 |
| **International Application Number:** | |
| **Confirmation Number:** | 2353 |
| **Title of Invention:** | VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES |
| **First Named Inventor/Applicant Name:** | Charles A. Leonard |
| **Customer Number:** | 153900 |
| **Filer:** | Seth Lee Hudson/Teresa Bush-Dugar |
| **Filer Authorized By:** | Seth Lee Hudson |
| **Attorney Docket Number:** | 7137CIP |
| **Receipt Date:** | 10-DEC-2020 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 15:55:06 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | DA |
| Payment was successfully received in RAM | $500 |
| RAM confirmation Number | E2020B0F55042292 |
| Deposit Account | |
| Authorized User | |

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Issue Fee Payment (PTO-85B) | Web85b.pdf | 46215<br>8c2395faf039e8874af0b80b7a96e05e57bd2d3f | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | Fee Worksheet (SB06) | fee-info.pdf | 31864<br>af5b2c83a3bbbc071055e76cc9e711d7bdfc53c4 | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 78079 | | |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|---|---|---|---|
| 15/619,261 | 06/09/2017 | Charles A. Leonard | 7137CIP |

**CONFIRMATION NO. 2353**

153900
Nexsen Pruet, PLLC (Charlotte Office)
227 West Trade Street
Suite 1550
Charlotte, NC 28202

**POA ACCEPTANCE LETTER**

*OC000000121944164*

Date Mailed: 12/11/2020

## NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/09/2020.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/yteferra/



**ETN1003**
**600/642**

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|---|---|---|---|
| 15/619,261 | 06/09/2017 | Charles A. Leonard | 7137CIP |

**CONFIRMATION NO. 2353**

**POWER OF ATTORNEY NOTICE**

22474
Clements Bernard Walker
4500 Cameron Valley Parkway
Suite 350
Charlotte, NC 28211

*OC000000121944117*

Date Mailed: 12/11/2020

## NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/09/2020.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/yteferra/



**ETN1003**
**601/642**

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NUMBER | FILING or 371(c) DATE | GRP ART UNIT | FIL FEE REC'D | ATTY.DOCKET.NO | TOT CLAIMS | IND CLAIMS |
|---|---|---|---|---|---|---|
| 15/619,261 | 06/09/2017 | 3665 | 800 | 7137CIP | 18 | 3 |

**CONFIRMATION NO. 2353**

**CORRECTED FILING RECEIPT**

153900
Nexsen Pruet, PLLC (Charlotte Office)
227 West Trade Street
Suite 1550
Charlotte, NC 28202

OC000000121944196

Date Mailed: 12/11/2020

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

**Please verify the accuracy of the data presented on this receipt.** If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

**Inventor(s)**

Charles A. Leonard, Hickory, NC;

**Applicant(s)**

COMMAND ELECTRONICS, LLC, Hickory, NC;

**Power of Attorney:** The patent practitioners associated with Customer Number 153900

**Domestic Priority data as claimed by applicant**

This application is a CIP of 14/961,787 12/07/2015 ABN
which claims benefit of 62/088,115 12/05/2014
and claims benefit of 62/101,109 01/08/2015

**Foreign Applications** for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
*Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.*

**Permission to Access Application via Priority Document Exchange:** No

**Permission to Access Search Results:** No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.



ETN1003
602/642

**If Required, Foreign Filing License Granted:** 06/22/2017
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/619,261**
**Projected Publication Date:** Not Applicable
**Non-Publication Request:** No
**Early Publication Request:** No
**** SMALL ENTITY ****
**Title**

VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES

**Preliminary Class**

701

**Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:** No

## PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

## LICENSE FOR FOREIGN FILING UNDER

## Title 35, United States Code, Section 184

## Title 37, Code of Federal Regulations, 5.11 & 5.15

**GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

**NOT GRANTED**

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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### *SelectUSA*

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.




**ETN1003**
**604/642**

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | ISSUE DATE | PATENT NO. | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/619,261 | 01/12/2021 | 10890925 | 064301.00002 | 2353 |

153900 7590 12/22/2020

Nexsen Pruet, PLLC (Charlotte Office)
227 West Trade Street
Suite 1550
Charlotte, NC 28202

# ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 75 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Charles A. Leonard, Hickory, NC;
COMMAND ELECTRONICS, LLC, Hickory, NC;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT7116662

| | |
|---|---|
| **SUBMISSION TYPE:** | NEW ASSIGNMENT |
| **NATURE OF CONVEYANCE:** | ASSIGNMENT |

**CONVEYING PARTY DATA**

| Name | Execution Date |
|---|---|
| COMMAND ELECTRONICS, LLC | 12/31/2021 |

**RECEIVING PARTY DATA**

| | |
|---|---|
| **Name:** | FBA OPERATING CO |
| **Street Address:** | 539 W COMMERCE ST 3281 |
| **City:** | DALLAS |
| **State/Country:** | TEXAS |
| **Postal Code:** | 75208 |

**PROPERTY NUMBERS Total: 2**

| Property Type | Number |
|---|---|
| **Patent Number:** | 10890925 |
| **Patent Number:** | 10818458 |

**CORRESPONDENCE DATA**

**Fax Number:**

***Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.***

**Phone:** 8139990199
**Email:** lros@aegislaw.com
**Correspondent Name:** LEILA ROS ROS
**Address Line 1:** 601 S LINDBERGH BLVD, STE 62, STE 620
**Address Line 4:** FRONTENAC, MISSOURI 63131

| | |
|---|---|
| **NAME OF SUBMITTER:** | LEILA ROS |
| **SIGNATURE:** | /Leila Ros/ |
| **DATE SIGNED:** | 01/12/2022 |
| | This document serves as an Oath/Declaration (37 CFR 1.63). |

**Total Attachments: 4**
source=Patent assignment#page1.tif
source=Patent assignment#page2.tif
source=Patent assignment#page3.tif
source=Patent assignment#page4.tif

DocuSign Envelope ID: E7ED3EBE-20AC-406B-B701-3975FC951C4F

# PATENT ASSIGNMENT AGREEMENT

This Patent Assignment Agreement (this "Assignment"), dated as of December 31, 2021 (the "Effective Date"), is made by Command Electronics, LLC, a North Carolina limited liability company (the "Assignor"), in favor of FBA Operating Co., a Delaware corporation (the "Assignee").

**WHEREAS**, pursuant to that certain Asset Purchase Agreement dated December 23, 2021 (the "Purchase Agreement"), by and among Assignor, Charles A. Leonard, an individual, and Mark D. Ehrnsberger, an individual (collectively, the "Owner"), and Assignee, the Assignor has agreed to sell, assign, transfer, convey and deliver to Assignee, and Assignee has agreed to purchase from Assignor, free and clear of all Encumbrances other than Permitted Encumbrances, all of Seller's right, title and interest in, to and under the Purchased Assets, including the Patents described on **Schedule 1**, and Assignee has assumed and agreed to pay, perform and discharge the Assumed Liabilities;

**WHEREAS**, pursuant to the Purchase Agreement, Seller has agreed to execute and deliver this Assignment to Escrow Agent on the Closing Date; and

**WHEREAS**, capitalized terms used herein and but not otherwise defined in this Assignment shall have the meanings ascribed to such terms in the Purchase Agreement.

**NOW THEREFORE**, in consideration of the mutual covenants, terms and conditions set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. Assignment. Assignor hereby sells, assigns, transfers, conveys and delivers to Assignee, and Assignee purchases from Assignor, free and clear of all Encumbrances other than Permitted Encumbrances, all of Assignor's right, title and interest in, to and under the Patents identified on **Schedule 1** attached hereto, and all: (a) royalties, fees, income, payments, and other proceeds now or hereafter due or payable to Seller with respect to such Patents; and (b) claims and causes of action with respect to such Patents, whether accruing before, on, or after the date hereof, including all rights to and claims for damages, restitution, and injunctive and other legal or equitable relief for past, present, or future infringement, misappropriation, or other violation thereof (collectively, the "Assigned Patents").

2. Recordation and Further Actions. Assignor hereby authorizes the Commissioner for Trademarks in the United States Patent and Trademark Office and the officials of corresponding entities or agencies in any applicable jurisdictions to record and register this Assignment upon request by Assignee. Following the date hereof, upon Assignee's reasonable request and at Assignee's sole cost and expense, Assignor shall take such steps and actions, and provide such cooperation and assistance to Assignee and its successors, assigns, and legal representatives, including the execution and delivery of any affidavits, declarations, oaths, exhibits, assignments, powers of attorney, or other documents, as may be reasonably necessary to effect, evidence, or perfect the assignment of the Assigned Patents to Assignee, or any Assignee or successor thereto.

DocuSign Envelope ID: E7ED3EBE-20AC-406B-B701-3975FC951C4F

3. Terms of the Purchase Agreement. The terms of the Purchase Agreement, including, but not limited to, the representations, warranties, covenants, agreements, and indemnities relating to the Assigned Patents are incorporated herein by this reference. The parties hereto acknowledge and agree that the representations, warranties, covenants, agreements, and indemnities contained in the Purchase Agreement shall not be superseded hereby but shall remain in full force and effect to the full extent provided therein. In the event of any conflict or inconsistency between the terms of the Purchase Agreement and the terms hereof, the terms of the Purchase Agreement shall govern.

4. Governing Law. This Assignment including all schedules attached hereto shall be governed by and construed in accordance with the internal laws of the State of Delaware, without giving effect to any choice or conflict of law's provisions thereof to the extent such principles or rules would require or permit the application of the laws of any jurisdiction other than those of the State of Delaware or any other jurisdiction.

5. Counterparts; Electronic Signatures. This Assignment may be executed in counterparts, each of which shall be deemed an original, but all of which together shall be deemed to be one and the same agreement. A signed copy of this Agreement delivered by facsimile, e-mail or other means of electronic transmission (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, e.g., www.docusign.com, www.adobesign.com) shall be deemed to have the same legal effect as delivery of an original signed copy of this Assignment.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK;
SIGNATURE PAGE FOLLOWS]

DocuSign Envelope ID: E7ED3EBE-20AC-406B-B701-3975FC951C4F

**IN WITNESS WHEREOF**, this Assignment has been executed by the parties hereto as of the Effective Date.

**ASSIGNOR:**

COMMAND ELECTRONICS, LLC

DocuSigned by:

By: _____
D5BF535E5AA146F...
Name: Charles A. Leonard
Title: Authorized Signatory

**ASSIGNEE:**

FBA OPERATING CO.

DocuSigned by:

By: _____
5E3C060F926E49D...
Name: Matt Rhodes
Its: Authorized Signatory

DocuSign Envelope ID: E7ED3EBE-20AC-406B-B701-3975FC951C4F

# SCHEDULE 1

ASSIGNED PATENTS

| Registered Patents | Agency | Registration Number | Registration Date |
|---|---|---|---|
| Vehicle Leveling Systems, Devices and Methods and Computer Program Products for Leveling Vehicles using Smart Devices | USPTO | 10,890,925 | January 12, 2021 |
| Recreational Vehicle Power Control Modules and Systems | USPTO | 10,818,458 | October 27, 2020 |

AO 120 (Rev. 08/10)

| TO: | REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK |
|---|---|
| Mail Stop 8<br>Director of the U.S. Patent and Trademark Office<br>P.O. Box 1450<br>Alexandria, VA 22313-1450 | |

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of North Carolina on the following

☐ Trademarks or ☑ Patents. ( ☐ the patent action involves 35 U.S.C. § 292.):

| DOCKET NO. | DATE FILED | U.S. DISTRICT COURT |
|---|---|---|
| 5:23-CV-505-D-RN | 9/13/2023 | Eastern District of North Carolina |

| PLAINTIFF | DEFENDANT |
|---|---|
| FBA Operating Co. | ETN Capital, LLC d/b/a Beech Lane, LLC |

| | PATENT OR TRADEMARK NO. | DATE OF PATENT OR TRADEMARK | HOLDER OF PATENT OR TRADEMARK |
|---|---|---|---|
| 1 | 10,890,925 B2 | 1/12/2021 | Command Electronics, LLC |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

| DATE INCLUDED | INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading | |
|---|---|---|
| PATENT OR TRADEMARK NO. | DATE OF PATENT OR TRADEMARK | HOLDER OF PATENT OR TRADEMARK |
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

In the above—entitled case, the following decision has been rendered or judgement issued:

| DECISION/JUDGEMENT |
|---|
| |

| CLERK | (BY) DEPUTY CLERK | DATE |
|---|---|---|
| Peter A. Moore, Jr. | | 9/15/2023 |

**Copy 1—Upon initiation of action, mail this copy to Director** **Copy 3—Upon termination of action, mail this copy to Director**
**Copy 2—Upon filing document adding patent(s), mail this copy to Director** **Copy 4—Case file copy**



ETN1003
611/642

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

Assignment ID: PATI97959

| | |
|---|---|
| **SUBMISSION TYPE:** | NEW ASSIGNMENT |
| **NATURE OF CONVEYANCE:** | SECURITY INTEREST |

**CONVEYING PARTY DATA**

| Name | Execution Date |
|---|---|
| FBA OPERATING CO. | 02/28/2024 |
| TECHNORV LLC | 02/28/2024 |
| BCK LLC | 02/28/2024 |

**RECEIVING PARTY DATA**

| | |
|---|---|
| **Company Name:** | MidCap Financial Trust |
| **Street Address:** | 7255 Woodmont Ave., Suite 200 |
| **City:** | Bethesda |
| **State/Country:** | MARYLAND |
| **Postal Code:** | 20814 |

**PROPERTY NUMBERS Total: 6**

| Property Type | Number |
|---|---|
| **Application Number:** | 29842601 |
| **Application Number:** | 63592858 |
| **Patent Number:** | 10890925 |
| **Patent Number:** | 10818458 |
| **Patent Number:** | D904684 |
| **Patent Number:** | D955052 |

**CORRESPONDENCE DATA**

**Fax Number:** 7036106200

***Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.***

**Phone:** 7036106100
**Email:** dctrademark@hoganlovells.com
**Correspondent Name:** Greta D. Feldman
**Address Line 1:** 8350 Broad St. 17th Floor
**Address Line 4:** Tysons,, VIRGINIA 22102

| | |
|---|---|
| **ATTORNEY DOCKET NUMBER:** | 036639.000191 |
| **NAME OF SUBMITTER:** | MICHAEL BOWMAN |
| **SIGNATURE:** | MICHAEL BOWMAN |

| | |
|---|---|
| **DATE SIGNED:** | 03/15/2024 |
| | This document serves as an Oath/Declaration (37 CFR 1.63). |

**Total Attachments: 6**
source=Midcap - Foundry - Patent Security Agreement#page1.tif
source=Midcap - Foundry - Patent Security Agreement#page2.tif
source=Midcap - Foundry - Patent Security Agreement#page3.tif
source=Midcap - Foundry - Patent Security Agreement#page4.tif
source=Midcap - Foundry - Patent Security Agreement#page5.tif
source=Midcap - Foundry - Patent Security Agreement#page6.tif

# INTELLECTUAL PROPERTY SECURITY AGREEMENT

This Intellectual Property Security Agreement is entered into as of the 28th day of February, 2024 by and among MIDCAP FINANCIAL TRUST, a Delaware statutory trust (in such capacity, together with its successors and assigns, "Agent") and FBA OPERATING CO., a Delaware corporation ("FBA OpCo"), TECHNORV LLC, a Delaware limited liability company ("Technorv"), BCK LLC, a Delaware limited liability company ("BCK", together with "FBA OpCo, Technorv, and any other Person that joins this agreement as a Grantor, each a "Grantor" and collectively, the "Grantors").

## RECITALS

A. The Lenders have agreed to make certain advances of money and to extend certain financial accommodation to the Grantors (the "Credit Extensions") in the amounts and manner set forth in that certain Credit, Security and Guaranty Agreement, by and between Agent, the Lenders and the Grantors dated as of the date hereof (as the same may be amended, modified or supplemented from time to time, the "Credit Agreement"; capitalized terms used herein are used as defined in the Credit Agreement). The Lenders are willing to make the Credit Extensions to the Grantors, but only upon the condition, among others, that the Grantors shall grant to Agent, for the ratable benefit of the Lenders, a security interest in certain Copyrights, Trademarks, Patents, and Mask Works (as each term is described below) to secure the obligations of the Grantors under the Credit Agreement.

B. Pursuant to the terms of the Credit Agreement, each Grantor has granted to Agent, for the ratable benefit of the Lenders, a security interest in all of such Grantor's right, title and interest, whether presently existing or hereafter acquired, in, to and under all of the Collateral.

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, and intending to be legally bound, as collateral security for the prompt and complete payment when due of its obligations under the Credit Agreement, each Grantor hereby represents, warrants, covenants and agrees as follows:

## AGREEMENT

To secure its obligations under the Credit Agreement, each Grantor grants and pledges to Agent, for the ratable benefit of the Lenders, a security interest in all of such Grantor's right, title and interest in, to and under its intellectual property, whether now owned or hereafter created, acquired or held (all of which shall collectively be called the "Intellectual Property Collateral"), including, without limitation, the following:

(a) Any and all copyright rights, copyright applications, copyright registrations and like protections in each work or authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret, including without limitation those set forth on Exhibit A attached hereto, as such Exhibit may be amended, modified or supplemented from time to time (collectively, the "Copyrights");

(b) Any and all trade secrets, and any and all intellectual property rights in computer software and computer software products;

(c) Any and all design rights that may be available to such Grantor;

(d) Any and all patents, patent applications and like protections including, without limitation, improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the same, including without limitation the patents and patent applications set forth on Exhibit B attached

hereto, as such Exhibit may be amended, modified or supplemented from time to time (collectively, the "Patents");

(e) Any and all trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of such Grantor connected with and symbolized by such trademarks, including without limitation those set forth on Exhibit C attached hereto, as such Exhibit may be amended, modified or supplemented from time to time (collectively, the "Trademarks");

(f) Any and all mask works or similar rights available for the protection of semiconductor chips, including, without limitation those set forth on Exhibit D attached hereto, as such Exhibit may be amended, modified or supplemented from time to time (collectively, the "Mask Works");

(g) Any and all claims for damages by way of past, present and future infringements of any of the rights included above, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the intellectual property rights identified above;

(h) All licenses or other rights to use any of the Copyrights, Patents, Trademarks, or Mask Works and all license fees and royalties arising from such use to the extent permitted by such license or rights;

(i) All amendments, extensions, renewals and extensions of any of the Copyrights, Trademarks, Patents, or Mask Works; and

(j) All proceeds and products of the foregoing, including without limitation all payments under insurance or any indemnity or warranty payable in respect of any of the foregoing.

This security interest is granted in conjunction with the security interest granted to Agent, for the ratable benefit of the Lenders, under the Credit Agreement. The rights and remedies of Agent with respect to the security interest granted hereby are in addition to those set forth in the Credit Agreement and the other Financing Documents, and those which are now or hereafter available to Agent as a matter of law or equity. Each right, power and remedy of Agent provided for herein or in the Credit Agreement or any of the Financing Documents, or now or hereafter existing at law or in equity shall be cumulative and concurrent and shall be in addition to every right, power or remedy provided for herein and the exercise by Agent of any one or more of the rights, powers or remedies provided for in this Intellectual Property Security Agreement, the Credit Agreement or any of the other Financing Documents, or now or hereafter existing at law or in equity, shall not preclude the simultaneous or later exercise by any person, including Agent, of any or all other rights, powers or remedies.

THIS INTELLECTUAL PROPERTY SECURITY AGREEMENT AND ALL DISPUTES AND OTHER MATTERS RELATING HERETO OR THERETO OR ARISING THEREFROM (WHETHER SOUNDING IN CONTRACT LAW, TORT LAW OR OTHERWISE), SHALL BE GOVERNED BY, AND SHALL BE CONSTRUED AND ENFORCED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK, WITHOUT REGARD TO CONFLICTS OF LAWS PRINCIPLES.

EACH GRANTOR AND AGENT HEREBY IRREVOCABLY WAIVE ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THIS INTELLECTUAL PROPERTY SECURITY AGREEMENT AND AGREES THAT ANY SUCH ACTION OR PROCEEDING SHALL BE TRIED BEFORE A COURT AND NOT BEFORE A JURY. EACH GRANTOR AND AGENT ACKNOWLEDGES THAT THIS WAIVER IS A MATERIAL INDUCEMENT TO ENTER INTO A BUSINESS RELATIONSHIP, THAT EACH HAS

RELIED ON THE WAIVER IN ENTERING INTO THIS AGREEMENT, AND THAT EACH WILL CONTINUE TO RELY ON THIS WAIVER IN THEIR RELATED FUTURE DEALINGS. EACH GRANTOR AND AGENT WARRANTS AND REPRESENTS THAT IT HAS HAD THE OPPORTUNITY OF REVIEWING THIS JURY WAIVER WITH LEGAL COUNSEL, AND THAT IT KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS.

This Intellectual Property Security Agreement may be signed in any number of counterparts, each of which shall be deemed an original and all of which when taken together shall constitute one and the same instrument. Delivery of an executed counterpart of this Intellectual Property Security Agreement by facsimile or by electronic mail delivery of an electronic version (e.g., .pdf or .tif file) of an executed signature page shall be effective as delivery of an original executed counterpart hereof and shall bind the parties hereto.

The provisions of the Credit Agreement regarding choice of law, jurisdiction, and venue are incorporated herein and shall govern this Intellectual Property Security Agreement. This Intellectual Property Security Agreement shall inure to the benefit of Agent, the Lenders and their respective successors and assigns, and shall be binding upon each Grantor and its successors and assigns.

[Signature page follows.]

IN WITNESS WHEREOF, the parties have caused this Intellectual Property Security Agreement to be duly executed by its officers thereunto duly authorized as of the first date written above.

GRANTORS:

FBA OPERATING CO., a Delaware corporation,

By:_____
Name: Matt Rhodes
Title: Chief Financial Officer

Address:

539 W. Commerce St., Suite 3281
Dallas, Texas 75208
Attention: Matt Rhodes
Telephone: (310) 717-9510
E-Mail: mattrhodes@foundrybrands.com

TECHNORV LLC, a Delaware limited liability company,

By:_____
Name: Matt Rhodes
Title: Chief Financial Officer

Address:

539 W. Commerce St., Suite 3281
Dallas, Texas 75208
Attention: Matt Rhodes
Telephone: (310) 717-9510
E-Mail: mattrhodes@foundrybrands.com

BCK LLC, a Delaware limited liability company

By:_____
Name: Matt Rhodes
Title: Chief Financial Officer

Address:

539 W. Commerce St., Suite 3281
Dallas, Texas 75208
Attention: Matt Rhodes
Telephone: (310) 717-9510
E-Mail: mattrhodes@foundrybrands.com

AGENT:

MIDCAP FINANCIAL TRUST

By: Apollo Capital Management, L.P.,
its investment manager

By: Apollo Capital Management GP, LLC,
its general partner

By: _____(SEAL)
Name: Maurice Amsellem
Title: Authorized Signatory

EXHIBIT B

Patents

| Description | Title | Registration/ Application Number | Registration/ Application Date |
|---|---|---|---|
| Levelmate | Vehicle leveling systems, devices and methods and computer program products for leveling vehicles using smart devices | 10,890,925 | 01/12/2021 |
| Levelmate | Recreational vehicle power control modules and systems | 10,818,458 | 10/27/2020 |
| Levelmate | LEVEL MATE LISTEN TO LEVEL | 63/592,858 | 10/24/2023 |
| Stryx | Concealer pen | D904684 | 12/08/2020 |
| Stryx | Concealer pen | D955052 | 06/14/2022 |
| Stryx | Concealer pen | 29/842,601 | 6/14/2022 |

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

Assignment ID: PATI127485

| | |
|---|---|
| **SUBMISSION TYPE:** | NEW ASSIGNMENT |
| **NATURE OF CONVEYANCE:** | Corrective Security Agreement |

**CONVEYING PARTY DATA**

| Name | Execution Date |
|---|---|
| FBA OPERATING CO. | 02/28/2024 |
| TECHNORV LLC | 02/28/2024 |
| BCK LLC | 02/28/2024 |

**RECEIVING PARTY DATA**

| | |
|---|---|
| **Company Name:** | MidCap Funding IV Trust |
| **Street Address:** | 7255 Woodmont Ave., Suite 200 |
| **City:** | Bethesda |
| **State/Country:** | MARYLAND |
| **Postal Code:** | 20814 |

**PROPERTY NUMBERS Total: 6**

| Property Type | Number |
|---|---|
| **Application Number:** | 63592858 |
| **Application Number:** | 29842601 |
| **Patent Number:** | 10890925 |
| **Patent Number:** | 10818458 |
| **Patent Number:** | D904684 |
| **Patent Number:** | D955052 |

**CORRESPONDENCE DATA**

**Fax Number:** 7036106200

***Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.***

**Phone:** 7036106100
**Email:** dctrademark@hoganlovells.com
**Correspondent Name:** Greta D. Feldman
**Address Line 1:** 8350 Broad St. 17th Floor
**Address Line 4:** Tysons,, VIRGINIA 22102

| | |
|---|---|
| **ATTORNEY DOCKET NUMBER:** | 036639.000191 |
| **NAME OF SUBMITTER:** | MICHAEL BOWMAN |
| **SIGNATURE:** | MICHAEL BOWMAN |

| | |
|---|---|
| **DATE SIGNED:** | 03/29/2024 |
| | This document serves as an Oath/Declaration (37 CFR 1.63). |

**Total Attachments: 6**
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source=Midcap - Foundry - Corrected Patent Security Agreement#page6.tif

# INTELLECTUAL PROPERTY SECURITY AGREEMENT

This Intellectual Property Security Agreement is entered into as of the 28th day of February, 2024 by and among MIDCAP FUNDING IV TRUST, a Delaware statutory trust (in such capacity, together with its successors and assigns, "Agent") and FBA OPERATING CO., a Delaware corporation ("FBA OpCo"), TECHNORV LLC, a Delaware limited liability company ("Technorv"), BCK LLC, a Delaware limited liability company ("BCK", together with "FBA OpCo, Technorv, and any other Person that joins this agreement as a Grantor, each a "Grantor" and collectively, the "Grantors").

## RECITALS

A. The Lenders have agreed to make certain advances of money and to extend certain financial accommodation to the Grantors (the "Credit Extensions") in the amounts and manner set forth in that certain Credit, Security and Guaranty Agreement, by and between Agent, the Lenders and the Grantors dated as of the date hereof (as the same may be amended, modified or supplemented from time to time, the "Credit Agreement"; capitalized terms used herein are used as defined in the Credit Agreement). The Lenders are willing to make the Credit Extensions to the Grantors, but only upon the condition, among others, that the Grantors shall grant to Agent, for the ratable benefit of the Lenders, a security interest in certain Copyrights, Trademarks, Patents, and Mask Works (as each term is described below) to secure the obligations of the Grantors under the Credit Agreement.

B. Pursuant to the terms of the Credit Agreement, each Grantor has granted to Agent, for the ratable benefit of the Lenders, a security interest in all of such Grantor's right, title and interest, whether presently existing or hereafter acquired, in, to and under all of the Collateral.

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, and intending to be legally bound, as collateral security for the prompt and complete payment when due of its obligations under the Credit Agreement, each Grantor hereby represents, warrants, covenants and agrees as follows:

## AGREEMENT

To secure its obligations under the Credit Agreement, each Grantor grants and pledges to Agent, for the ratable benefit of the Lenders, a security interest in all of such Grantor's right, title and interest in, to and under its intellectual property, whether now owned or hereafter created, acquired or held (all of which shall collectively be called the "Intellectual Property Collateral"), including, without limitation, the following:

(a) Any and all copyright rights, copyright applications, copyright registrations and like protections in each work or authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret, including without limitation those set forth on Exhibit A attached hereto, as such Exhibit may be amended, modified or supplemented from time to time (collectively, the "Copyrights");

(b) Any and all trade secrets, and any and all intellectual property rights in computer software and computer software products;

(c) Any and all design rights that may be available to such Grantor;

(d) Any and all patents, patent applications and like protections including, without limitation, improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the same, including without limitation the patents and patent applications set forth on Exhibit B attached

hereto, as such Exhibit may be amended, modified or supplemented from time to time (collectively, the "Patents");

(e) Any and all trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of such Grantor connected with and symbolized by such trademarks, including without limitation those set forth on Exhibit C attached hereto, as such Exhibit may be amended, modified or supplemented from time to time (collectively, the "Trademarks");

(f) Any and all mask works or similar rights available for the protection of semiconductor chips, including, without limitation those set forth on Exhibit D attached hereto, as such Exhibit may be amended, modified or supplemented from time to time (collectively, the "Mask Works");

(g) Any and all claims for damages by way of past, present and future infringements of any of the rights included above, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the intellectual property rights identified above;

(h) All licenses or other rights to use any of the Copyrights, Patents, Trademarks, or Mask Works and all license fees and royalties arising from such use to the extent permitted by such license or rights;

(i) All amendments, extensions, renewals and extensions of any of the Copyrights, Trademarks, Patents, or Mask Works; and

(j) All proceeds and products of the foregoing, including without limitation all payments under insurance or any indemnity or warranty payable in respect of any of the foregoing.

This security interest is granted in conjunction with the security interest granted to Agent, for the ratable benefit of the Lenders, under the Credit Agreement. The rights and remedies of Agent with respect to the security interest granted hereby are in addition to those set forth in the Credit Agreement and the other Financing Documents, and those which are now or hereafter available to Agent as a matter of law or equity. Each right, power and remedy of Agent provided for herein or in the Credit Agreement or any of the Financing Documents, or now or hereafter existing at law or in equity shall be cumulative and concurrent and shall be in addition to every right, power or remedy provided for herein and the exercise by Agent of any one or more of the rights, powers or remedies provided for in this Intellectual Property Security Agreement, the Credit Agreement or any of the other Financing Documents, or now or hereafter existing at law or in equity, shall not preclude the simultaneous or later exercise by any person, including Agent, of any or all other rights, powers or remedies.

THIS INTELLECTUAL PROPERTY SECURITY AGREEMENT AND ALL DISPUTES AND OTHER MATTERS RELATING HERETO OR THERETO OR ARISING THEREFROM (WHETHER SOUNDING IN CONTRACT LAW, TORT LAW OR OTHERWISE), SHALL BE GOVERNED BY, AND SHALL BE CONSTRUED AND ENFORCED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK, WITHOUT REGARD TO CONFLICTS OF LAWS PRINCIPLES.

EACH GRANTOR AND AGENT HEREBY IRREVOCABLY WAIVE ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THIS INTELLECTUAL PROPERTY SECURITY AGREEMENT AND AGREES THAT ANY SUCH ACTION OR PROCEEDING SHALL BE TRIED BEFORE A COURT AND NOT BEFORE A JURY. EACH GRANTOR AND AGENT ACKNOWLEDGES THAT THIS WAIVER IS A MATERIAL INDUCEMENT TO ENTER INTO A BUSINESS RELATIONSHIP, THAT EACH HAS

RELIED ON THE WAIVER IN ENTERING INTO THIS AGREEMENT, AND THAT EACH WILL CONTINUE TO RELY ON THIS WAIVER IN THEIR RELATED FUTURE DEALINGS. EACH GRANTOR AND AGENT WARRANTS AND REPRESENTS THAT IT HAS HAD THE OPPORTUNITY OF REVIEWING THIS JURY WAIVER WITH LEGAL COUNSEL, AND THAT IT KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS.

This Intellectual Property Security Agreement may be signed in any number of counterparts, each of which shall be deemed an original and all of which when taken together shall constitute one and the same instrument. Delivery of an executed counterpart of this Intellectual Property Security Agreement by facsimile or by electronic mail delivery of an electronic version (e.g., .pdf or .tif file) of an executed signature page shall be effective as delivery of an original executed counterpart hereof and shall bind the parties hereto.

The provisions of the Credit Agreement regarding choice of law, jurisdiction, and venue are incorporated herein and shall govern this Intellectual Property Security Agreement. This Intellectual Property Security Agreement shall inure to the benefit of Agent, the Lenders and their respective successors and assigns, and shall be binding upon each Grantor and its successors and assigns.

[Signature page follows.]

IN WITNESS WHEREOF, the parties have caused this Intellectual Property Security Agreement to be duly executed by its officers thereunto duly authorized as of the first date written above.

GRANTORS:

FBA OPERATING CO., a Delaware corporation,

By:_____
Name: Matt Rhodes
Title: Chief Financial Officer

Address:

539 W. Commerce St., Suite 3281
Dallas, Texas 75208
Attention: Matt Rhodes
Telephone: (310) 717-9510
E-Mail: mattrhodes@foundrybrands.com

TECHNORV LLC, a Delaware limited liability company,

By:_____
Name: Matt Rhodes
Title: Chief Financial Officer

Address:

539 W. Commerce St., Suite 3281
Dallas, Texas 75208
Attention: Matt Rhodes
Telephone: (310) 717-9510
E-Mail: mattrhodes@foundrybrands.com

BCK LLC, a Delaware limited liability company

By:_____
Name: Matt Rhodes
Title: Chief Financial Officer

Address:

539 W. Commerce St., Suite 3281
Dallas, Texas 75208
Attention: Matt Rhodes
Telephone: (310) 717-9510
E-Mail: mattrhodes@foundrybrands.com

AGENT:

MIDCAP FUNDING IV TRUST

By: Apollo Capital Management, L.P.,
its investment manager

By: Apollo Capital Management GP, LLC,
its general partner

By: _____
Name: Maurice Amsellem
Title: Authorized Signatory

EXHIBIT B

Patents

| Description | Title | Registration/ Application Number | Registration/ Application Date |
|---|---|---|---|
| Levelmate | Vehicle leveling systems, devices and methods and computer program products for leveling vehicles using smart devices | 10,890,925 | 01/12/2021 |
| Levelmate | Recreational vehicle power control modules and systems | 10,818,458 | 10/27/2020 |
| Levelmate | LEVEL MATE LISTEN TO LEVEL | 63/592,858 | 10/24/2023 |
| Stryx | Concealer pen | D904684 | 12/08/2020 |
| Stryx | Concealer pen | D955052 | 06/14/2022 |
| Stryx | Concealer pen | 29/842,601 | 6/14/2022 |

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

Assignment ID: PATI333792

| | |
|---|---|
| **SUBMISSION TYPE:** | RESUBMISSION |
| **NATURE OF CONVEYANCE:** | Corrective Assignment to correct the Name of Assignee from MidCap Financial Trust to MidCap Funding IV Trust previously recorded on Reel 066789 Frame 0628 |
| **RESUBMIT DOCUMENT ID:** | 508468122 |

**CONVEYING PARTY DATA**

| Name | Execution Date |
|---|---|
| FBA OPERATING CO. | 02/28/2024 |
| TECHNORV LLC | 02/28/2024 |
| BCK LLC | 02/28/2024 |

**RECEIVING PARTY DATA**

| | |
|---|---|
| **Company Name:** | MidCap Funding IV Trust |
| **Street Address:** | 7255 Woodmont Ave., Suite 200 |
| **City:** | Bethesda |
| **State/Country:** | MARYLAND |
| **Postal Code:** | 20814 |

**PROPERTY NUMBERS Total: 6**

| Property Type | Number |
|---|---|
| **Application Number:** | 63592858 |
| **Application Number:** | 29842601 |
| **Patent Number:** | 10890925 |
| **Patent Number:** | 10818458 |
| **Patent Number:** | D904684 |
| **Patent Number:** | D955052 |

**CORRESPONDENCE DATA**

**Fax Number:** 7036106200

***Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.***

**Phone:** 7036106100
**Email:** dctrademark@hoganlovells.com
**Correspondent Name:** Greta D. Feldman
**Address Line 1:** 8350 Broad St. 17th Floor
**Address Line 4:** Tysons,, VIRGINIA 22102

| | |
|---|---|
| **ATTORNEY DOCKET NUMBER:** | 036639.000191 |

| | |
|---|---|
| **NAME OF SUBMITTER:** | MICHAEL BOWMAN |
| **SIGNATURE:** | MICHAEL BOWMAN |
| **DATE SIGNED:** | 07/01/2024 |
| | This document serves as an Oath/Declaration (37 CFR 1.63). |

**Total Attachments: 13**
source=First filed Cover Sheet - Midcap - Foundry - Patent Security Agreement#page1.tiff
source=Foundry - Notice of Recordation - Security Interest - Patents - 066789-0628#page1.tiff
source=Midcap - Foundry - Corrected Patent Security Agreement#page1.tiff
source=Notice of NonRecordation -MidCap-Foundry - Patents#page1.tiff
source=Second filed Cover Sheet - Midcap - Foundry - Patent Security Agreement#page1.tiff
source=First filed Cover Sheet - Midcap - Foundry - Patent Security Agreement#page2.tiff
source=Foundry - Notice of Recordation - Security Interest - Patents - 066789-0628#page2.tiff
source=Midcap - Foundry - Corrected Patent Security Agreement#page2.tiff
source=Second filed Cover Sheet - Midcap - Foundry - Patent Security Agreement#page2.tiff
source=Midcap - Foundry - Corrected Patent Security Agreement#page3.tiff
source=Midcap - Foundry - Corrected Patent Security Agreement#page4.tiff
source=Midcap - Foundry - Corrected Patent Security Agreement#page5.tiff
source=Midcap - Foundry - Corrected Patent Security Agreement#page6.tiff

**PATENT ASSIGNMENT COVER SHEET**

Assignment ID: 97959

Electronic Version v1.1
Stylesheet Version v1.2

| | |
|---|---|
| **SUBMISSION TYPE:** | NEW ASSIGNMENT |
| **NATURE OF CONVEYANCE:** | SECURITY INTEREST |

**CONVEYING PARTY DATA**

| Name | Execution Date |
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| FBA OPERATING CO. | 02/28/2024 |
| TECHNORV LLC | 02/28/2024 |
| BCK LLC | 02/28/2024 |

**RECEIVING PARTY DATA**

| | |
|---|---|
| **Name:** | MidCap Financial Trust |
| **Street Address:** | 7255 Woodmont Ave., Suite 200 |
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| **State/Country:** | MARYLAND UNITED STATES |
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**Phone:** 7036106100
**Email:** dctrademark@hoganlovells.com
***Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.***
**Correspondent Name:** Greta D. Feldman
**Address Line 1:** 8350 Broad St. 17th Floor

**UNITED STATES PATENT AND TRADEMARK OFFICE**

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

MARCH 18, 2024

PTAS

GRETA D. FELDMAN
8350 BROAD ST. 17TH FLOOR
TYSONS,, VA 22102

**508441565**

UNITED STATES PATENT AND TRADEMARK OFFICE
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT RECORDATION BRANCH OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE ASSIGNMENT RECORDATION BRANCH AT 571-272-3350. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, MAIL STOP: ASSIGNMENT RECORDATION BRANCH, P.O. BOX 1450, ALEXANDRIA, VA 22313.

RECORDATION DATE: 03/15/2024
REEL/FRAME: 066789/0628
NUMBER OF PAGES: 8

BRIEF: SECURITY INTEREST (SEE DOCUMENT FOR DETAILS).

DOCKET NUMBER: 036639.000191

ASSIGNOR:
FBA OPERATING CO.
DOC DATE: 02/28/2024

ASSIGNOR:
TECHNORV LLC
DOC DATE: 02/28/2024

ASSIGNOR:
BCK LLC
DOC DATE: 02/28/2024

ASSIGNEE:
MIDCAP FINANCIAL TRUST
7255 WOODMONT AVE., SUITE 200
BETHESDA, MARYLAND 20814

APPLICATION NUMBER: 15619261
FILING DATE: 06/09/2017
PATENT NUMBER: 10890925
ISSUE DATE: 01/12/2021
TITLE: VEHICLE LEVELING SYSTEMS, DEVICES AND METHODS AND COMPUTER PROGRAM PRODUCTS FOR LEVELING VEHICLES USING SMART DEVICES

APPLICATION NUMBER: 16352395
FILING DATE: 03/13/2019
PATENT NUMBER: 10818458
ISSUE DATE: 10/27/2020
TITLE: RECREATIONAL VEHICLE POWER CONTROL MODULES AND SYSTEMS

# INTELLECTUAL PROPERTY SECURITY AGREEMENT

This Intellectual Property Security Agreement is entered into as of the 28th day of February, 2024 by and among **MIDCAP FUNDING IV TRUST**, a Delaware statutory trust (in such capacity, together with its successors and assigns, "Agent") and FBA OPERATING CO., a Delaware corporation ("FBA OpCo"), TECHNORV LLC, a Delaware limited liability company ("Technorv"), BCK LLC, a Delaware limited liability company ("BCK", together with "FBA OpCo, Technorv, and any other Person that joins this agreement as a Grantor, each a "Grantor" and collectively, the "Grantors").

## RECITALS

A. The Lenders have agreed to make certain advances of money and to extend certain financial accommodation to the Grantors (the "Credit Extensions") in the amounts and manner set forth in that certain Credit, Security and Guaranty Agreement, by and between Agent, the Lenders and the Grantors dated as of the date hereof (as the same may be amended, modified or supplemented from time to time, the "Credit Agreement"; capitalized terms used herein are used as defined in the Credit Agreement). The Lenders are willing to make the Credit Extensions to the Grantors, but only upon the condition, among others, that the Grantors shall grant to Agent, for the ratable benefit of the Lenders, a security interest in certain Copyrights, Trademarks, Patents, and Mask Works (as each term is described below) to secure the obligations of the Grantors under the Credit Agreement.

B. Pursuant to the terms of the Credit Agreement, each Grantor has granted to Agent, for the ratable benefit of the Lenders, a security interest in all of such Grantor's right, title and interest, whether presently existing or hereafter acquired, in, to and under all of the Collateral.

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, and intending to be legally bound, as collateral security for the prompt and complete payment when due of its obligations under the Credit Agreement, each Grantor hereby represents, warrants, covenants and agrees as follows:

## AGREEMENT

To secure its obligations under the Credit Agreement, each Grantor grants and pledges to Agent, for the ratable benefit of the Lenders, a security interest in all of such Grantor's right, title and interest in, to and under its intellectual property, whether now owned or hereafter created, acquired or held (all of which shall collectively be called the "Intellectual Property Collateral"), including, without limitation, the following:

(a) Any and all copyright rights, copyright applications, copyright registrations and like protections in each work or authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret, including without limitation those set forth on Exhibit A attached hereto, as such Exhibit may be amended, modified or supplemented from time to time (collectively, the "Copyrights");

(b) Any and all trade secrets, and any and all intellectual property rights in computer software and computer software products;

(c) Any and all design rights that may be available to such Grantor;

(d) Any and all patents, patent applications and like protections including, without limitation, improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the same, including without limitation the patents and patent applications set forth on Exhibit B attached

UNITED STATES PATENT AND TRADEMARK OFFICE

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

April 29, 2024

PTAS

GRETA D. FELDMAN
8350 BROAD ST. 17TH FLOOR
TYSONS,, VA 22102

508468122

United States Patent and Trademark Office
Notice of Non-Recordation of an Assignment Document

The enclosed document has been examined and found non-recordable by the Assignment Recordation Branch of the U.S. Patent and Trademark Office. The reason(s) for non-recordation are stated below:

1. The document submitted to correct errors in the previously recorded document is not acceptable. To correct an error in the recorded document, you must file a new cover sheet stating the error and the nature of conveyance, attach the previously recorded cover sheet which contains the error and the supporting document and pay the recording fees as set forth in 37 C.F.R. §3.34

2. 1.) The cover sheet submitted did not provide complete information required for recording. Please select Corrective Assignment as the conveyance type. 2.) Nature of Conveyance brief is incorrect. Please follow the prompts to list: 1 identify what parts of the assignment need to be corrected, 2 previously recorded reel and frame, and 3 conveyance text of the original assignment.

Documents being resubmitted for recordation must reflect the corrected information to be recorded, the Document ID number referenced above and all pages from this submitted document. The original date of filing of this assignment document will be maintained if resubmitted with the appropriate correction(s) by **Monday, July 1, 2024**, as outlined under 37 CFR 3.51. For documents submitted by mail, the resubmitted document must include a stamp with the original date of receipt, by the office, under 37 CFR 3.51. Applicants may use the certified procedures under 37 CFR 1.8 or 1.10 for resubmission of the returned papers if they desire to have the benefit of the date of deposit in the United States Postal Service.

To file the resubmission electronically, navigate to the Assignment Center website at https://assignmentcenter.uspto.gov, click the Resubmission button and enter the following information:

**Document ID: 508468122**
**Access Code: U0ZWYTL1XI9V2FZ**

If you have any questions regarding this notice, you may contact the Assignment Recordation Branch at 571-272-3350.

SHANIECE HAYES
ASSIGNMENT RECORDATION BRANCH
PUBLIC RECORDS DIVISION



ETN1003
633/642

**PATENT ASSIGNMENT COVER SHEET**

Assignment ID: 127485

Electronic Version v1.1
Stylesheet Version v1.2

| | |
|---|---|
| **SUBMISSION TYPE:** | NEW ASSIGNMENT |
| **NATURE OF CONVEYANCE:** | Corrective Security Agreement |

**CONVEYING PARTY DATA**

| Name | Execution Date |
|---|---|
| FBA OPERATING CO. | 02/28/2024 |
| TECHNORV LLC | 02/28/2024 |
| BCK LLC | 02/28/2024 |

**RECEIVING PARTY DATA**

| | |
|---|---|
| **Name:** | MidCap Funding IV Trust |
| **Street Address:** | 7255 Woodmont Ave., Suite 200 |
| **City:** | Bethesda |
| **State/Country:** | MARYLAND UNITED STATES |
| **Postal Code:** | 20814 |

**PROPERTY NUMBERS Total:6**

| Property Type | Number |
|---|---|
| **Application Number:** | 63592858 |
| **Application Number:** | 29842601 |
| **Patent Number:** | 10890925 |
| **Patent Number:** | 10818458 |
| **Patent Number:** | D904684 |
| **Patent Number:** | D955052 |

**CORRESPONDENCE DATA**

**Fax Number:** 7036106200
**Phone:** 7036106100
**Email:** dctrademark@hoganlovells.com
***Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.***
**Correspondent Name:** Greta D. Feldman
**Address Line 1:** 8350 Broad St. 17th Floor

| | |
|---|---|
| **Address Line 4:** | Tysons, , VIRGINIA 22102 |
| **ATTORNEY DOCKET NUMBER:** | 036639.000191 |
| **NAME OF SUBMITTER:** | MICHAEL BOWMAN |
| **Signature:** | MICHAEL BOWMAN |
| **Date:** | 03/15/2024 |
| | This document serves as an Oath/Declaration (37 CFR 1.63). |
| **TOTAL ATTACHMENTS: 1**<br>source= Midcap - Foundry - Patent Security Agreement.pdf | |

APPLICATION NUMBER: 29674178 FILING DATE: 12/20/2018
PATENT NUMBER: D904684 ISSUE DATE: 12/08/2020
TITLE: CONCEALER PEN

APPLICATION NUMBER: 29760362 FILING DATE: 12/01/2020
PATENT NUMBER: D955052 ISSUE DATE: 06/14/2022
TITLE: CONCEALER PEN

APPLICATION NUMBER: 29842601 FILING DATE: 06/14/2022
PATENT NUMBER: ISSUE DATE:
TITLE: CONCEALER PEN

APPLICATION NUMBER: 63592858 FILING DATE: 10/24/2023
PATENT NUMBER: ISSUE DATE:
TITLE: LEVEL MATE LISTEN TO LEVEL

ASSIGNMENT RECORDATION BRANCH
PUBLIC RECORDS DIVISION

hereto, as such Exhibit may be amended, modified or supplemented from time to time (collectively, the "Patents");

(e) Any and all trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of such Grantor connected with and symbolized by such trademarks, including without limitation those set forth on Exhibit C attached hereto, as such Exhibit may be amended, modified or supplemented from time to time (collectively, the "Trademarks");

(f) Any and all mask works or similar rights available for the protection of semiconductor chips, including, without limitation those set forth on Exhibit D attached hereto, as such Exhibit may be amended, modified or supplemented from time to time (collectively, the "Mask Works");

(g) Any and all claims for damages by way of past, present and future infringements of any of the rights included above, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the intellectual property rights identified above;

(h) All licenses or other rights to use any of the Copyrights, Patents, Trademarks, or Mask Works and all license fees and royalties arising from such use to the extent permitted by such license or rights;

(i) All amendments, extensions, renewals and extensions of any of the Copyrights, Trademarks, Patents, or Mask Works; and

(j) All proceeds and products of the foregoing, including without limitation all payments under insurance or any indemnity or warranty payable in respect of any of the foregoing.

This security interest is granted in conjunction with the security interest granted to Agent, for the ratable benefit of the Lenders, under the Credit Agreement. The rights and remedies of Agent with respect to the security interest granted hereby are in addition to those set forth in the Credit Agreement and the other Financing Documents, and those which are now or hereafter available to Agent as a matter of law or equity. Each right, power and remedy of Agent provided for herein or in the Credit Agreement or any of the Financing Documents, or now or hereafter existing at law or in equity shall be cumulative and concurrent and shall be in addition to every right, power or remedy provided for herein and the exercise by Agent of any one or more of the rights, powers or remedies provided for in this Intellectual Property Security Agreement, the Credit Agreement or any of the other Financing Documents, or now or hereafter existing at law or in equity, shall not preclude the simultaneous or later exercise by any person, including Agent, of any or all other rights, powers or remedies.

THIS INTELLECTUAL PROPERTY SECURITY AGREEMENT AND ALL DISPUTES AND OTHER MATTERS RELATING HERETO OR THERETO OR ARISING THEREFROM (WHETHER SOUNDING IN CONTRACT LAW, TORT LAW OR OTHERWISE), SHALL BE GOVERNED BY, AND SHALL BE CONSTRUED AND ENFORCED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK, WITHOUT REGARD TO CONFLICTS OF LAWS PRINCIPLES.

EACH GRANTOR AND AGENT HEREBY IRREVOCABLY WAIVE ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THIS INTELLECTUAL PROPERTY SECURITY AGREEMENT AND AGREES THAT ANY SUCH ACTION OR PROCEEDING SHALL BE TRIED BEFORE A COURT AND NOT BEFORE A JURY. EACH GRANTOR AND AGENT ACKNOWLEDGES THAT THIS WAIVER IS A MATERIAL INDUCEMENT TO ENTER INTO A BUSINESS RELATIONSHIP, THAT EACH HAS

| | |
|---|---|
| **Address Line 4:** | Tysons, , VIRGINIA 22102 |
| **ATTORNEY DOCKET NUMBER:** | 036639.000191 |
| **NAME OF SUBMITTER:** | MICHAEL BOWMAN |
| **Signature:** | MICHAEL BOWMAN |
| **Date:** | 03/29/2024 |
| | This document serves as an Oath/Declaration (37 CFR 1.63). |

**TOTAL ATTACHMENTS: 1**
source= Midcap - Foundry - Corrected Patent Security Agreement.pdf

RELIED ON THE WAIVER IN ENTERING INTO THIS AGREEMENT, AND THAT EACH WILL CONTINUE TO RELY ON THIS WAIVER IN THEIR RELATED FUTURE DEALINGS. EACH GRANTOR AND AGENT WARRANTS AND REPRESENTS THAT IT HAS HAD THE OPPORTUNITY OF REVIEWING THIS JURY WAIVER WITH LEGAL COUNSEL, AND THAT IT KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS.

This Intellectual Property Security Agreement may be signed in any number of counterparts, each of which shall be deemed an original and all of which when taken together shall constitute one and the same instrument. Delivery of an executed counterpart of this Intellectual Property Security Agreement by facsimile or by electronic mail delivery of an electronic version (e.g., .pdf or .tif file) of an executed signature page shall be effective as delivery of an original executed counterpart hereof and shall bind the parties hereto.

The provisions of the Credit Agreement regarding choice of law, jurisdiction, and venue are incorporated herein and shall govern this Intellectual Property Security Agreement. This Intellectual Property Security Agreement shall inure to the benefit of Agent, the Lenders and their respective successors and assigns, and shall be binding upon each Grantor and its successors and assigns.

[Signature page follows.]

IN WITNESS WHEREOF, the parties have caused this Intellectual Property Security Agreement to be duly executed by its officers thereunto duly authorized as of the first date written above.

**GRANTORS:**

FBA OPERATING CO., a Delaware corporation,

By:_____
Name: Matt Rhodes
Title: Chief Financial Officer

Address:

539 W. Commerce St., Suite 3281
Dallas, Texas 75208
Attention: Matt Rhodes
Telephone: (310) 717-9510
E-Mail: mattrhodes@foundrybrands.com

TECHNORV LLC, a Delaware limited liability company,

By:_____
Name: Matt Rhodes
Title: Chief Financial Officer

Address:

539 W. Commerce St., Suite 3281
Dallas, Texas 75208
Attention: Matt Rhodes
Telephone: (310) 717-9510
E-Mail: mattrhodes@foundrybrands.com

BCK LLC, a Delaware limited liability company

By:_____
Name: Matt Rhodes
Title: Chief Financial Officer

Address:

539 W. Commerce St., Suite 3281
Dallas, Texas 75208
Attention: Matt Rhodes
Telephone: (310) 717-9510
E-Mail: mattrhodes@foundrybrands.com

**AGENT:**

**MIDCAP FUNDING IV TRUST**

By: Apollo Capital Management, L.P.,
its investment manager

By: Apollo Capital Management GP, LLC,
its general partner

By: _____
Name: Maurice Amsellem
Title: Authorized Signatory

EXHIBIT B

Patents

| Description | Title | Registration/ Application Number | Registration/ Application Date |
|---|---|---|---|
| Levelmate | Vehicle leveling systems, devices and methods and computer program products for leveling vehicles using smart devices | 10,890,925 | 01/12/2021 |
| Levelmate | Recreational vehicle power control modules and systems | 10,818,458 | 10/27/2020 |
| Levelmate | LEVEL MATE LISTEN TO LEVEL | 63/592,858 | 10/24/2023 |
| Stryx | Concealer pen | D904684 | 12/08/2020 |
| Stryx | Concealer pen | D955052 | 06/14/2022 |
| Stryx | Concealer pen | 29/842,601 | 6/14/2022 |