AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 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 Western District of Texas - Waco Division on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
6:21-cv-723	7/14/2021	Western District of Texas - Waco Division

PLAINTIFF	DEFENDANT
POWERMAT TECHNOLOGIES LTD.	Shenzhen DAK Technology Co., LTD d/b/a CHOETECH

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,006,937 B2	4/14/2015	POWERMAT TECHNOLOGIES LTD.
2	9,048,696 B2	6/2/2015	POWERMAT TECHNOLOGIES LTD.
3	9,099,894 B2	8/4/2015	POWERMAT TECHNOLOGIES LTD.
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		
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

09/19/2022 Doc #41 ORDER GRANTING [40] Motion for Entry of Agreed Judgment.

CLERK	(BY) DEPUTY CLERK	DATE
PHILIP J. DEVLIN		09/21/2022

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

Print Save As... Reset

AO 120 (Rev. 08/10)

TO:	Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK

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 Western District of Texas - Waco Division on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
6:21-cv-724	7/14/2021	Western District of Texas - Waco Division

PLAINTIFF	DEFENDANT
POWERMAT TECHNOLOGIES LTD.	SHENZHEN HUASHUNTONG LOGISTICS CO., LTD d/b/a NANAMI

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT
06/15/2022 Doc #33 ORDER GRANTING #32 Motion For Entry of Agreed Judgment.

CLERK	(BY) DEPUTY CLERK	DATE
PHILIP J. DEVLIN		06/15/2022

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**

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6:21-cv-723	7/14/2021	Western District of Texas - Waco Division

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☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
6:21-cv-725	7/14/2021	Western District of Texas - Waco Division

PLAINTIFF	DEFENDANT
POWERMAT TECHNOLOGIES LTD.	SHENZHEN KAIXINGHUI TECHNOLOGY CO., LTD. d/b/a YOOTECH

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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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
14/152,358	01/10/2014	Yossi AZANCOT	POW-US02CUS

CONFIRMATION NO. 8993

3624
Volpe Koenig
30 SOUTH 17TH STREET, 18TH FLOOR
PHILADELPHIA, PA 19103

POWER OF ATTORNEY NOTICE

OC000000122119619

Date Mailed: 12/21/2020

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/15/2020.

- 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**.

/tlulu/

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
14/152,358	01/10/2014	Yossi AZANCOT	POW-US02CUS

CONFIRMATION NO. 8993

176391
Volpe Koenig - Powermat
30 South 17th Street
Suite 1800
Philadelphia, PA 19103

POA ACCEPTANCE LETTER

OC000000122119663

Date Mailed: 12/21/2020

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/15/2020.

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**.

/tlulu/

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
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 persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14/152,358
Filing Date	January 10, 2014
First Named Inventor	Yossi AZANCOT
Title	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
Art Unit	3649
Examiner Name	Fritz M Fleming
Attorney Docket Number	POW-US02CUS

SIGNATURE of Applicant or Patent Practitioner

Signature	/Gerald B. Halt, Jr./	Date (Optional)	December 15, 2020
Name	Gerald B. Halt, Jr.	Registration Number	37,633
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)	Powermat Technologies Ltd.		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 3 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: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
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 persons are required to respond to a collection of information unless it displays a valid OMB control number

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 176391

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Powermat Technologies Ltd.

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	
Name	Kfir ABUHATZIRA		
Title	Chief Financial Officer		

Powermat Technologies Ltd
Company no. 513814452

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 3 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.

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 Acknowledgement Receipt

EFS ID:	41391304
Application Number:	14152358
International Application Number:	
Confirmation Number:	8993
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Customer Number:	3624
Filer:	Gerald B. Halt Jr./Lorraine Givigliano
Filer Authorized By:	Gerald B. Halt Jr.
Attorney Docket Number:	POW-US02CUS
Receipt Date:	15-DEC-2020
Filing Date:	10-JAN-2014
Time Stamp:	15:03:04
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	POW_US02CUS_Power_of_Attorney_By_Applicant_14152358_20201215_EFS.pdf	317454 3a93509d1c0c26a194cfee23ebf2a41c6706e57e	no	3

Warnings:

Information:	
Total Files Size (in bytes):	317454

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
14/152,358	01/10/2014	Yossi AZANCOT	POWM0130PUSA1

CONFIRMATION NO. 8993

22045
Brooks Kushman
1000 Town Center
22nd Floor
Southfield, MI 48075

POWER OF ATTORNEY NOTICE

OC000000121534738

Date Mailed: 11/25/2020

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/19/2020.

- 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**.

/ltaba/

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
14/152,358	01/10/2014	Yossi AZANCOT	POW-US02CUS

CONFIRMATION NO. 8993

3624
Volpe Koenig
30 SOUTH 17TH STREET, 18TH FLOOR
PHILADELPHIA, PA 19103

POA ACCEPTANCE LETTER

OC000000121534789

Date Mailed: 11/25/2020

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/19/2020.

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**.

/ltaba/

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
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 persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14/152,358
Filing Date	January 10, 2014
First Named Inventor	Yossi AZANCOT
Title	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
Art Unit	3649
Examiner Name	Fritz M Fleming
Attorney Docket Number	POW-US02CUS

SIGNATURE of Applicant or Patent Practitioner

Signature	/Gerald B. Halt, Jr./	Date (Optional)	November 19, 2020
Name	Gerald B. Halt, Jr.	Registration Number	37,633
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)	Powermat Technologies Ltd.		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 3 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: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
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 persons are required to respond to a collection of information unless it displays a valid OMB control number

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 03624

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Powermat Technologies Ltd.

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	Company no. 51381444-2	Date (Optional)	
Name	Kfir ABUHATZIRA		
Title	Chief Financial Officer		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 3 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.

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 Acknowledgement Receipt

EFS ID:	41172110
Application Number:	14152358
International Application Number:	
Confirmation Number:	8993
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Customer Number:	22045
Filer:	Gerald B. Halt Jr./Lorraine Givigliano
Filer Authorized By:	Gerald B. Halt Jr.
Attorney Docket Number:	POWM0130PUSA1
Receipt Date:	19-NOV-2020
Filing Date:	10-JAN-2014
Time Stamp:	15:21:06
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	POW_US02CUS_Power_of_Attorney_By_Applicant_14152358_20201119_EFS.pdf	265923 349122c537f879705a8c507e671afcd6fad6f9f7	no	3
Warnings:					

Information:	
Total Files Size (in bytes):	265923

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
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www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/152,358	06/02/2015	9048696	POWM0130PUSA1	8993

22045 7590 05/13/2015

BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075

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 0 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):

POWERMAT TECHNOLOGIES, LTD., NEVE ILAN, ISRAEL;
Yossi AZANCOT, Jerusalem, ISRAEL;
Amir BEN-SHALOM, Modiin, ISRAEL;
Oola GREENWALD, Mevasseret Zion, ISRAEL;
Arik ROFE, Jerusalem, ISRAEL;
Alfred LEI-BOVITZ, Petach Tikva, ISRAEL;
Moti Ashery, Jerusalem, ISRAEL;

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.

Receipt date: 01/10/2014	Application Number	14152358 - GAU: 2836
Change(s) applied to document AD HR 4/17/2015	Filing Date	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	First Named Inventor	YOSSI AZANCOT
	Art Unit	
	Examiner Name	
	Attorney Docket Number	POWM0130PUSA1

	7	04-156242	JP		1992-05-28	SEKISUI CHEM CO LTD		☐
	8	2006-102055	JP		2006-04-20	CLEANUP CORP		☐
	9	07-036556	JP		7/1995	UNKNOWN		☐
	10	2001309579	JP		2001-11-02	MATSUSHITA ELECTRIC WORKS LTD		☐
	11	2006037972	WO	A1	2005-09-30	GALLAGHER		☐

If you wish to add additional Foreign Patent Document citation information please click the Add button **Add**

NON-PATENT LITERATURE DOCUMENTS **Remove**

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Office Action dated March 22, 2013, for Mexican Application MX/a/2011/003088	☐
	2	Office Action dated February 5, 2013, for Chinese Application 201110068458.7	☐
	3	Office Action dated May 28, 2013, for Japanese Application 2010-526422	☐
	4	Office Action dated May 28, 2013, for Japanese Application 2010-528526	☐

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /F.F./

Receipt date: 01/10/2014	Application Number	14152358 - GAU: 2836
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Filing Date	
(Not for submission under 37 CFR 1.99)	First Named Inventor	Yossi Azancot
	Art Unit	
	Examiner Name	
	Attorney Docket Number	POWM0130PUSA1

	3	20030210106	A1	2003-11-13	CHENG et al.	
Change(s) applied to document, /D.D./ 4/21/2015	4	20040023633	A1	~~2004-01-85~~	GORDON	February 5, 2004
	5	20040195767	A1	2004-10-07	RANDALL	
	6	20040203537	A1	2004-10-14	YOSHIDA et al.	
	7	20040242264	A1	2004-12-02	CHO	
	8	20040261802	A1	2004-12-30	GRIFFIN et al.	
	9	20050007067	A1	2005-01-13	BAARMAN et al.	
	10	20050083020	A1	2005-04-21	BAARMAN	
	11	20050130593	A1	2005-06-16	MICHALAK	
	12	20050164636	A1	2005-07-28	PALERMO et al.	
	13	20050169506	A1	2005-08-04	FENRICH et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /F.F./

Receipt date: 01/10/2014	Application Number	14152358 - GAU: 2836
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99**)	Filing Date	
	First Named Inventor	Yossi Azancot
	Art Unit	
	Examiner Name	
	Attorney Docket Number	POWM0130PUSA1

	31	6532298	B1	2003-03-11	CAMBIER et al.	
	32	6586909	B1	2003-07-01	TREPKA	
Change(s) applied to document, /D.D./ 4/21/2015	33	6624616	B1	~~2003-07-23~~	FRERKING et al.	September 23, 2003
	34	6644557	B1	2003-11-11	JACOBS	
	35	6673250	B2	2004-01-06	KUENNEN et al.	
	36	6721540	B1	2004-04-13	KAYAKAWA	
	37	6731071	B2	2004-05-04	BAARMAN	
	38	6766040	B1	2004-07-20	CATALANO et al.	
	39	6825620	B2	2004-11-30	KUENNEN et al.	
	40	6888438	B2	2005-05-03	HUI et al.	
	41	6894457	B2	2005-05-17	GERMAGIAN et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /F.F./

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.
14/152,358	01/10/2014	Yossi AZANCOT	POWM0130PUSA1	8993

22045 7590 05/06/2015

BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075

EXAMINER	
FLEMING, FRITZ M	

ART UNIT	PAPER NUMBER
3649	

NOTIFICATION DATE	DELIVERY MODE
05/06/2015	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):

docketing@brookskushman.com

Response to Rule 312 Communication	Application No.	Applicant(s)
	14/152,358	YOSSI AZANCOT
	Examiner	Art Unit

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

1. ☒ The amendment filed on *02 May 2015* under 37 CFR 1.312 has been considered, and has been:

a) ☒ entered.

b) ☐ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☐ entered in part. See explanation below.

Trevon Couch

/Publishing Division/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Yossi AZANCOT

Group Art Unit: 3649

Examiner: FLEMING, FRITZ M

Serial No.: 14/152,358

Filed: January 10, 2014

For: TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Attorney Docket No.: POWM 0130 PUSA1

AMENDMENT AFTER ALLOWANCE UNDER 37 C.F.R. § 1.312 IN RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS

Mail Stop Issue Fee
Commissioner for Patents
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

In response to the Notice To File Corrected Application Papers mailed May 1, 2015, please amend the above-identified application as follows:

Amendments to the Specification:

Please amend the specification Paragraph [0030] on page 8 as shown below:

[0030] Optionally, the transmission-guard comprises a low-power power pulse transmitted by the primary coil, such that when the secondary coil is aligned to the primary coil the power pulse is transferred to the secondary coil and the transmission-key is triggered by the power pulse. Preferably, a first transmission-lock is released by a first transmission-key indicating the probable presence of a secondary coil and a second transmission-lock is released by a second transmission-key confirming the presence of the secondary coil. The first transmission-lock may initiate a power pulse transmitted from the primary coil, and the second transmission key being triggered by the power pulse being received by the secondary coil. The magnetic element may comprise a ferrite flux guidance core. Variously, the release-signal is selected from the group comprising: mechanical signals, audio signals, ultra-sonic signals and microwaves. It is also an aim to present separately: a transmission-key for use in the transmission-guard, a transmission-lock for use in the transmission-guard ~~of claim 40~~, and an inductive power outlet protected by the transmission-guard.

Summary

Applicant has amended the paragraph to delete the incorrect reference to Claim 40 in response to the Notice To File Corrected Application Papers.

The Examiner is requested to telephone the undersigned to discuss resolution of any remaining issues.

No additional fee is believed be due as a result of filing this paper. However, please charge any fees or credit any overpayments as a result of the filing of this paper to Deposit Account No. 02-3978.

Respectfully submitted,

Yossi AZANCOT

By: /David S. Bir/
David S. Bir
Reg. No. 38,383
Attorney/Agent for Applicant

Date: May 2, 2015

BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351

Attachment: Copy of Notice to File Corrected Application Papers



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 14152358
Applicant : Azancot
Filing Date : 01/10/2014
Date Mailed : 05/01/2015

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Notice of Allowance Mailed

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given two (2) months from the mail date of this Notice within which to respond. This time period for reply is extendable under 37 CFR 1.136(a) for only TWO additional MONTHS.

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED.

See attachment(s).

A copy of this notice MUST be returned with the reply. Please address response to "Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450".

/Kevin Danemark/
Publication Branch
Office of Data Management
(571) 272-4200

Application No. 14152358

SPECIFICATION REFERS TO ITS OWN PAGE/PARAGRAPH NUMBER(S) AND/OR SPECIFICATION REFERS TO NONEXISTENT CLAIM(S)

☐ The patent will be printed in numbered columns with intercolumnar line numbers and without paragraph numbers. Any reference(s) within the applicant-filed specification to its own page number(s) or paragraph number(s) will have no meaning in the printed patent.

In response to this notice, the applicant either should file an amendment to the specification that removes the reference(s) to the page number(s) or paragraph number(s) or should submit a letter stating that the patent specification should be printed with the reference(s) to the page number(s) or paragraph number(s).

See Page(s)/Paragraph(s) .

☒ The specification refers by number to one or more claims that are not present in the allowed application – that is, the claim number(s) mentioned in the specification are higher than the total number of allowed claims.

In response to this notice, the applicant either should file an amendment to the specification that removes the reference(s) to the nonexistent claim(s) or should submit a letter stating that the patent specification should be printed with the reference(s) to the nonexistent claim(s).

See Page(s)/Paragraph(s) 8.

Electronic Acknowledgement Receipt	
EFS ID:	22237603
Application Number:	14152358
International Application Number:	
Confirmation Number:	8993
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Customer Number:	22045
Filer:	David S. Bir
Filer Authorized By:	
Attorney Docket Number:	POWM0130PUSA1
Receipt Date:	02-MAY-2015
Filing Date:	10-JAN-2014
Time Stamp:	21:57:03
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		Response.pdf	107348 74411cdca125c6c547311fcecdb4895f62485d2d	yes	5

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment after Notice of Allowance (Rule 312)	1	1
	Specification	2	2
	Applicant Arguments/Remarks Made in an Amendment	3	3
	Miscellaneous Incoming Letter	4	5
Warnings:			
Information:			
	Total Files Size (in bytes):	107348	

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.
14/152,358	01/10/2014	Yossi AZANCOT	POWM0130PUSA1	8993

22045 7590 05/01/2015

BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075

EXAMINER	
FLEMING, FRITZ M	

ART UNIT	PAPER NUMBER
3649	

NOTIFICATION DATE	DELIVERY MODE
05/01/2015	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):

docketing@brookskushman.com

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 14152358
Applicant : Azancot
Filing Date : 01/10/2014
Date Mailed : 05/01/2015

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Notice of Allowance Mailed

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given two (2) months from the mail date of this Notice within which to respond. This time period for reply is extendable under 37 CFR 1.136(a) for only TWO additional MONTHS.

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED.

See attachment(s).

A copy of this notice MUST be returned with the reply. Please address response to "Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450".

/Kevin Danemark/
Publication Branch
Office of Data Management
(571) 272-4200

Application No. 14152358

SPECIFICATION REFERS TO ITS OWN PAGE/PARAGRAPH NUMBER(S) AND/OR SPECIFICATION REFERS TO NONEXISTENT CLAIM(S)

☐ The patent will be printed in numbered columns with intercolumnar line numbers and without paragraph numbers. Any reference(s) within the applicant-filed specification to its own page number(s) or paragraph number(s) will have no meaning in the printed patent.

In response to this notice, the applicant either should file an amendment to the specification that removes the reference(s) to the page number(s) or paragraph number(s) or should submit a letter stating that the patent specification should be printed with the reference(s) to the page number(s) or paragraph number(s).

See Page(s)/Paragraph(s) .

☒ The specification refers by number to one or more claims that are not present in the allowed application – that is, the claim number(s) mentioned in the specification are higher than the total number of allowed claims.

In response to this notice, the applicant either should file an amendment to the specification that removes the reference(s) to the nonexistent claim(s) or should submit a letter stating that the patent specification should be printed with the reference(s) to the nonexistent claim(s).

See Page(s)/Paragraph(s) 8.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

22045 7590 04/08/2015
BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/152,358	01/10/2014	Yossi AZANCOT	POWM0130PUSA1	8993

TITLE OF INVENTION: TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	07/08/2015

EXAMINER	ART UNIT	CLASS-SUBCLASS
FLEMING, FRITZ M	3649	307-104000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ 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 03-02 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,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 Brooks Kushman P.C.
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

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.

(A) NAME OF ASSIGNEE: POWERMAT TECHNOLOGIES, LTD.
(B) RESIDENCE: (CITY and STATE OR COUNTRY): NEVE ILAN, ISRAEL

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
☒ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☒ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 02-3978 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ Applicant certifying micro entity status. See 37 CFR 1.29
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.
☐ 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.

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 /David S. Bir/ Date April 15, 2015
Typed or printed name David S. Bir Registration No. 38,383

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Electronic Patent Application Fee Transmittal

Application Number:	14152358
Filing Date:	10-Jan-2014
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Filer:	David S. Bir/Pamela Demos
Attorney Docket Number:	POWM0130PUSA1

Filed as Large 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:				
Utility Appl Issue Fee	1501	1	960	960

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**960**

Electronic Acknowledgement Receipt	
EFS ID:	22064627
Application Number:	14152358
International Application Number:	
Confirmation Number:	8993
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Customer Number:	22045
Filer:	David S. Bir
Filer Authorized By:	
Attorney Docket Number:	POWM0130PUSA1
Receipt Date:	15-APR-2015
Filing Date:	10-JAN-2014
Time Stamp:	12:28:55
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$960
RAM confirmation Number	9692
Deposit Account	023978
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

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)	Issue_Fee_Transmittal.pdf	301107 14cc221fcd1c303d1bf0e3fcd3e2eb5cdbaa75eb	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30897 affbb00cb001fcfbbd6ce1acaf1b4435f67bce48	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	332004		

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

22045 7590 04/08/2015

BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075

EXAMINER	
FLEMING, FRITZ M	
ART UNIT	PAPER NUMBER
3649	

DATE MAILED: 04/08/2015

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/152,358	01/10/2014	Yossi AZANCOT	POWM0130PUSA1	8993

TITLE OF INVENTION: TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	07/08/2015

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.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

22045 7590 04/08/2015

BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/152,358	01/10/2014	Yossi AZANCOT	POWM0130PUSA1	8993

TITLE OF INVENTION: TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	07/08/2015

EXAMINER	ART UNIT	CLASS-SUBCLASS
FLEMING, FRITZ M	3649	307-104000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ 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 03-02 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,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

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.

(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. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

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.

❑ 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.

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. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/152,358	01/10/2014	Yossi AZANCOT	POWM0130PUSA1	8993

22045 7590 04/08/2015

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EXAMINER	
FLEMING, FRITZ M	
ART UNIT	**PAPER NUMBER**
3649	

DATE MAILED: 04/08/2015

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.

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 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, 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. 14/152,358	Applicant(s) AZANCOT ET AL.	
	Examiner FRITZ M. FLEMING	Art Unit 3649	AIA (First Inventor to File) Status No

-- 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 *the amendment after final filed 3/30/15*.
   ☐ 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 *1,4-19*. 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 _____.

/FRITZ M FLEMING/
Primary Examiner, Art Unit 3649

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L4	3346	(307/104).CCLS.	US-PGPUB; USPAT	OR	OFF	2015/03/31 21:42
L5	2245	(320/108).CCLS.	US-PGPUB; USPAT	OR	OFF	2015/03/31 21:47
L6	6529	h02j17/00.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/03/31 21:52
S1	0	"20140125146"	USPAT	OR	OFF	2014/09/26 15:24
S2	1	("20140125146").PN.	US-PGPUB; USPAT	OR	OFF	2014/09/26 15:24
S3	1	S2 and significantly	US-PGPUB; USPAT	OR	OFF	2014/09/26 15:25
S4	2	(("20140125146") or ("20140125147")).PN.	US-PGPUB; USPAT	OR	OFF	2014/09/26 15:32
S5	2922	(307/104).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/09/26 15:36
S6	1	S5 and young and apple and fleming	USPAT	OR	OFF	2014/09/26 15:37
S7	174	S5 and (nonresonant or (non adj resonant))	US-PGPUB; USPAT	OR	ON	2014/09/26 15:39
S8	133	h02j17/00.cpc. and (nonresonant or (non adj resonant))	US-PGPUB; USPAT	OR	ON	2014/09/26 15:44
S9	125	(wireless adj power adj transfer) and (nonresonant or (non adj resonant))	US-PGPUB; USPAT	OR	ON	2014/09/26 15:45
S10	1	(wireless adj power adj transfer) and (nonresonant or (non adj resonant))	EPO; JPO; DERWENT	OR	ON	2014/09/26 15:46
S11	1	contactless$ and (nonresonant or (non adj resonant))	EPO; JPO; DERWENT	OR	ON	2014/09/26 15:47
S12	852	(nonresonant or (non adj resonant))	EPO; JPO; DERWENT	OR	ON	2014/09/26 15:47
S13	8	(nonresonant or (non adj resonant)) same transfer	EPO; JPO; DERWENT	OR	ON	2014/09/26 15:47
S14	0	(nonresonant or (non adj resonant)) same contactless	FPRS	OR	ON	2014/09/26 15:50
S15	17	(nonresonant or (non adj resonant)) same contactless	US-PGPUB; USPAT	OR	ON	2014/09/26 15:50
S16	294	S5 and detun$	US-PGPUB; USPAT	OR	ON	2014/09/26 15:56
S17	1926	(320/108).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/09/26 16:00

S18	36	S17 and (non adj1 (resonant or resonance or resonating))	US-PGPUB; USPAT	OR	ON	2014/09/26 16:01
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S20	10	(inductive adj power) and resonance and peak	FPRS; EPO; JPO; DERWENT	OR	ON	2014/09/26 16:10
S21	693	(inductive adj power) and resonance and peak	US-PGPUB; USPAT	OR	ON	2014/09/26 16:11
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S26	246	S25 and ((resonant or resonance) same frequency same adjust)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT	OR	ON	2014/09/26 21:47
S27	396	S25 and ((resonant or resonance) same frequency same adjust$)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT	OR	ON	2014/09/26 21:47
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S30	636	S25 and (align$ oe misalign$)	US-PGPUB; USPAT	OR	ON	2014/09/26 22:44
S31	514	S25 and (align$ or misalign$)	US-PGPUB; USPAT	OR	ON	2014/09/26 22:45
S32	187	S25 and ((align$ or misalign$) same frequency)	US-PGPUB; USPAT	OR	ON	2014/09/26 22:45
S33	2922	(307/104).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/09/26 22:49
S34	1926	(320/108).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/09/26 22:49
S35	4588	S33 or S34	US-PGPUB; USPAT	OR	OFF	2014/09/26 22:49
S36	1463	S35 and (align$ or misalign$)	US-PGPUB; USPAT	OR	ON	2014/09/26 22:50
S37	971	S35 and (align$ or misalign$) and frequency and (resonant or resonance)	US-PGPUB; USPAT	OR	ON	2014/09/26 22:51
S38	286	S35 and (align$ or misalign$) and frequency and (resonant or resonance) and detun$	US-PGPUB; USPAT	OR	ON	2014/09/26 22:53
S39	345	S35 and detun$	US-PGPUB; USPAT	OR	ON	2014/09/26 23:18
S40	7021	(inductive or wireless or noncontact or contactless) same (power or energy) same transfer same frequency	US-PGPUB; USPAT	OR	ON	2014/09/26 23:23
S41	538	(inductive or wireless or noncontact or contactless) same (power or energy) same transfer same frequency	EPO; JPO; DERWENT	OR	ON	2014/09/26 23:24
S42	207	frequency same controller same up same down same inputs	USPAT	OR	OFF	2014/09/27 11:50
S43	2	"frequency controller" same inputs same increase same decrease	USPAT	OR	OFF	2014/09/27 11:57
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S47	43	"frequency controller" and (inputs same up same down)	US-PGPUB	OR	OFF	2014/09/27 12:02
S48	71	"frequency controller" and (inputs same up same down)	USPAT	OR	OFF	2014/09/27 12:04
S49	234	"frequency generator" and (inputs same up same down)	USPAT	OR	OFF	2014/09/27 12:09
S50	0	"frequency generator" and (inputs same up same down)	EPO	OR	OFF	2014/09/27 12:10
S51	1	"frequency generator" and (inputs same up same down)	JPO	OR	OFF	2014/09/27 12:10
S52	11	"frequency generator" and (inputs same up same down)	DERWENT	OR	OFF	2014/09/27 12:10
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S56	149	"clock generator" same (inputs same up same down)	USPAT	OR	OFF	2014/09/27 12:35
S57	141	"programmable frequency generator"	USPAT	OR	OFF	2014/09/27 12:39
S58	199	"frequency sweep" same up same down	USPAT	OR	OFF	2014/09/27 12:46
S59	2922	(307/104).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/09/27 12:55
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S63	5344	h02j17/00.cpc.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT	OR	ON	2014/09/27 13:16
S64	34	S63 and (frequency same up same down)	US-PGPUB; USPAT	OR	OFF	2014/09/27 13:16
S65	34	S63 and (frequency same sweep)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:20
S66	97	S59 and (frequency same sweep)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:22
S67	1938	S59 and (frequency same power)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:27

S68	1985	S59 and (frequency same power samew adjust)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:27
S69	590	S59 and (frequency same power same adjust)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:27
S70	732	S59 and (frequency near3 adjust$)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:28
S71	477	S59 and (frequency same increase same decrease)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:32
S72	174	S59 and (frequency near5 increase near5 decrease)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:33
S73	985	S59 and (frequency same power same efficiency)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:33
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S75	82998	(wireless$ or noncontact$ or inductive$ or contactless$) and power and transfer and (frequency and power and efficiency)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:58
S76	1136	(wireless$ or noncontact$ or inductive$ or contactless$) same power same transfer same (frequency same power same efficiency)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:58
S77	5295	307/104.ccls. or 320/108.ccls. or h02j17/00.cpc.	US-PGPUB; USPAT	OR	ON	2014/09/27 14:49
S78	595	S77 and (frequency same feedback)	US-PGPUB; USPAT	OR	ON	2014/09/27 14:50
S79	2	powermat and dru	USPAT	OR	OFF	2014/09/27 15:30
S80	144	"5455466"	USPAT	OR	OFF	2014/09/28 22:34
S81	3178	(307/104).CCLS.	US-PGPUB; USPAT	OR	OFF	2015/01/12 12:49
S82	2093	(320/108).CCLS.	US-PGPUB; USPAT	OR	OFF	2015/01/12 12:50
S83	1656	h02j17/00.cpc.	US-PGPUB; USPAT	OR	OFF	2015/01/12 12:50
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S89	315	S87 and ((magnet or magnetic) same alignment)	US-PGPUB; USPAT	OR	ON	2015/01/12 15:07
S90	190	S89 not S88	US-PGPUB; USPAT	OR	ON	2015/01/12 15:07
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S92	248	S91 and ((magnet or magnetic) same alignment)	US-PGPUB; USPAT	OR	ON	2015/01/12 15:09
S93	4	"2006031133"	EPO; DERWENT	OR	OFF	2015/02/26 09:30
S94	11	"2006031133"	FPRS	OR	OFF	2015/02/26 09:31

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S97	0	(steve near5 young) and (fritz near5 fleming)	USPAT	OR	OFF	2015/02/26 09:47
S98	1	(steven near5 young) and (fritz near5 fleming)	USPAT	OR	OFF	2015/02/26 09:47

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	(alignment same (resonant or resonance) same inductive same outlet same primary same secondary).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2015/03/31 21:40
L2	0	(307/104).CCLS.	UPAD	OR	OFF	2015/03/31 21:42
L3	1	(320/108).CCLS.	UPAD	OR	OFF	2015/03/31 21:42

3/31/2015 10:40:25 PM
C:\Users\ffleming\Documents\EAST\Workspaces\powermat.wsp

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14152358	AZANCOT ET AL.
	Examiner	**Art Unit**
	FRITZ M FLEMING	3649

CPC						
Symbol					**Type**	**Version**
H02J		17	/	00	F	2013-01-01
H01F		27	/	266	A	2013-01-01
H01F		27	/	365	A	2013-01-01
H01F		38	/	14	I	2013-01-01
H01F		2038	/	143	A	2013-01-01
H02J		7	/	025	I	2013-01-01
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CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
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NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	17	
/FRITZ M FLEMING/ Primary Examiner.Art Unit 3649	03/31/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6B

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14152358	AZANCOT ET AL.
	Examiner	Art Unit
	FRITZ M FLEMING	3649

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
307	104	H	0	1	F	38 / 14 (2006.01.01)						
CROSS REFERENCE(S)												
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)											

NONE (Assistant Examiner) (Date)	Total Claims Allowed: 17	
/FRITZ M FLEMING/ Primary Examiner.Art Unit 3649 03/31/2015 (Primary Examiner) (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 6B

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14152358	AZANCOT ET AL.
	Examiner	Art Unit
	FRITZ M FLEMING	3649

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

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	15	17												
-	2	16	18												
-	3	17	19												
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10	12														
11	13														
12	14														
13	15														
14	16														

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 17	
/FRITZ M FLEMING/ Primary Examiner.Art Unit 3649 (Primary Examiner)	03/31/2015 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 6B

U.S. Patent and Trademark Office Part of Paper No. 20150331

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14152358	AZANCOT ET AL.
	Examiner	Art Unit
	FRITZ M FLEMING	2836

CPC- SEARCHED		
Symbol	Date	Examiner
H02J17/00	9/29/2014	FMF

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
307	104	9/29/2014	FMF
320	108	9/29/2014	FMF

SEARCH NOTES		
Search Notes	Date	Examiner
EAST, reviewed related applications and patents.	9/29/2014	FMF
updated search.	1/12/2015	FMF
updated search.	3/31/2015	FMF

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
307	104	3/31/2015	FMF
	see interference search update.	3/31/2015	FMF

	/FRITZ M FLEMING/ Primary Examiner.Art Unit 2836

OK TO ENTER: /F.F./ (03/31/2015)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Yossi AZANCOT

Group Art Unit: 3649

Examiner: FLEMING, FRITZ M

Serial No.: 14/152,358

Filed: January 10, 2014

For: TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Attorney Docket No.: POWM 0130 PUSA1

AMENDMENT UNDER 37 C.F.R. § 1.116

Mail Stop AF
Commissioner for Patents
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

In response to the Final Office Action mailed January 20, 2015, please amend the above-identified application as follows:

OK TO ENTER: /F.F./ (03/31/2015)

UNITED STATES PATENT AND TRADEMARK OFFICE

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BIB DATA SHEET

CONFIRMATION NO. 8993

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
14/152,358	01/10/2014 RULE	307	3649	POWM0130PUSA1

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POWERMAT TECHNOLOGIES, LTD., NEVE ILAN, ISRAEL, Assignee (with 37 CFR 1.172 Interest);

INVENTORS

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Arik ROFE, Jerusalem, ISRAEL;
Alfred LEI-BOVITZ, Petach Tikva, ISRAEL;
Moti Ashery, Jerusalem, ISRAEL;

**** CONTINUING DATA ***************************

This application is a DIV of 12/883,457 09/16/2010
which is a CON of PCT/IL2008/001641 12/18/2008
which claims benefit of 61/064,618 03/17/2008
and claims benefit of 61/071,151 04/15/2008
and claims benefit of 61/129,526 07/02/2008
and claims benefit of 61/129,859 07/24/2008
and claims benefit of 61/129,970 08/04/2008

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

01/24/2014

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /FRITZ M FLEMING/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		ISRAEL	19	12	1

ADDRESS

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SOUTHFIELD, MI 48075
UNITED STATES

TITLE

TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

FILING FEE RECEIVED		
800	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____

BIB (Rev. 05/07).

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14152358	AZANCOT ET AL.
	Examiner	**Art Unit**
	FRITZ M FLEMING	2836

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

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

CLAIM		DATE								
Final	Original	09/29/2014	03/31/2015							
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-	2	✓	-							
-	3	✓	-							
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16	18		=							
17	19		=							

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Yossi AZANCOT

Group Art Unit: 3649

Examiner: FLEMING, FRITZ M

Serial No.: 14/152,358

Filed: January 10, 2014

For: TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Attorney Docket No.: POWM 0130 PUSA1

AMENDMENT UNDER 37 C.F.R. § 1.116

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Commissioner for Patents
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

In response to the Final Office Action mailed January 20, 2015, please amend the above-identified application as follows:

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An inductive power outlet operable to transfer power to an inductive power receiver, said inductive power outlet comprising:

a platform for supporting said inductive power receiver;

at least one primary inductive coil embedded in said platform;

an alignment mechanism configured to facilitate alignment between said primary inductive outlet and said inductive power receiver such that an inductive couple is formed between said primary inductive coil and a secondary inductive coil of said inductive power receiver, said inductive couple having a characteristic resonant frequency; and

a driving circuit wired to said primary inductive coil, said driving circuit comprising a switching unit configured and operable to provide an oscillating driving voltage across said primary inductive coil such that a secondary voltage is induced in the secondary inductive coil;

wherein said driving circuit is configured and operable to produce said oscillating driving ~~voltage;~~voltage at a transmission frequency substantially different from said characteristic resonant frequency of said inductive couple.

2. (Cancelled)

3. (Cancelled)

4. (Previously Presented) The inductive power outlet of claim 1 said inductive power outlet comprising a signal detector adapted to detect a first signal and a second signal, and said driver is configured to:

increase said transmission frequency when said first signal is detected by the detector, and

decrease said transmission frequency when said second signal is detected by the detector.

5. (Previously Presented) The inductive power outlet of claim 1 said driver being configured to adjust said transmission frequency in response to feedback signals.

6. (Previously Presented) The inductive power outlet of claim 5 wherein said feedback signals carry data pertaining to the operational parameters of said electric load.

7. (Previously Presented) The inductive power outlet of claim 6 wherein said operational parameters are selected from the group consisting of:

required operating voltage for said electric load;
required operating current for said electric load;
required operating temperature for said electric load;
required operating power for said electric load;
measured operating voltage for said electric load;
measured operating current for said electric load;
measured operating temperature for said electric load;
measured operating power for said electric load;
power delivered to said primary inductive coil;
power received by said secondary inductive coil, and
a user identification code.

8. (Previously Presented) The inductive power outlet of claim 4 wherein said detector is selected from the list comprising optical detectors, radio receivers, audio detectors and voltage peak detectors.

9. (Previously Presented) The inductive power outlet of claim 1 wherein said driver further comprises a voltage monitor for monitoring the amplitude of a primary voltage across said primary coil.

10. (Previously Presented) The inductive power outlet of claim 9 wherein said voltage monitor is configured to detect significant increases in primary voltage.

11. (Previously Presented) The inductive power outlet of claim 1 comprising a power converter selected from the group comprising: a transformer, a DC-to-DC converter, an AC-to-DC converter, an AC-to-AC converter, a flyback transformer, a flyback converter, a full-bridge converter, a half-bridge converter and a forward converter.

12. (Previously Presented) The inductive power outlet of claim 1 incorporated into at least one application selected from a group consisting of: inductive chargers, inductive power adaptors, power tools, kitchen appliances, bathroom appliances, computers, media players, office equipment, implanted devices, pace makers, trackers and RFID tags.

13. (Previously Presented) The inductive power outlet of claim 1 wherein said alignment mechanism comprises a first magnetic element configured to engage a second magnetic element associated with the power receiver.

14. (Previously Presented) The inductive power outlet of claim 1 wherein said alignment mechanism comprises an audible indication.

15. (Previously Presented) The inductive power outlet of claim 1 wherein said alignment mechanism comprises a visual indication.

16. (Previously Presented) The inductive power outlet of claim 1 wherein said alignment mechanism comprises a tactile indication.

17. (Previously Presented) A method for transferring power from an inductive power outlet to an inductive power receiver, said method comprising:

providing at least one primary inductive coil embedded in a platform;

forming an inductive couple between said primary inductive coil and a secondary inductive coil of said inductive power receiver, said inductive couple having a characteristic resonant frequency; and

providing an oscillating driving voltage across said primary inductive coil such that a secondary voltage is induced in the secondary inductive coil, wherein said oscillating

driving voltage has a transmission frequency substantially different from said characteristic resonant frequency of said inductive couple.

18. (Previously Presented) The method of claim 17 further comprising increasing said transmission frequency by an incremental value when a signal of a first type is detected from said inductive power receiver.

19. (Previously Presented) The method of claim 17 further comprising decreasing said transmission frequency by an incremental value when a signal of a second type is detected from said inductive power receiver.

Remarks

In the Office Action mailed January 20, 2015, claims 1 and 4-19 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Malpas.

Claim 1 has been amended to remove a semicolon thereby correcting a typographical error. Applicant respectfully submits that this amendment should be entered at this time, as it puts the claims in better form, and will not require more than a cursory review by the Examiner.

No other amendments have been made to the claims and no new matter has been introduced. Applicants reserve the right to pursue any cancelled subject matter in this or other applications

Claims 1 and 4-19 are pending. Reconsideration and re-examination of the application as amended is respectfully requested.

Telephone Interview Summary

Applicant thanks the Examiner for the telephonic interview conducted on February, 26, 2015 with Mr. Jonathan Ross (#73,094) and Mr. Michael Morris of Yagod Morris & Associates, who provide the Applicant assistance in matters pertaining to patent prosecution. In the interview, the interpretation of the language of claims 1 and 17 was discussed in view of the specification. Agreement was reached that remarks directed to the claim language would overcome the rejection of record.

Rejection Under 35 U.S.C. § 103(a)

Claims 1 and 4-19 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Malpas. The Applicant respectfully disagrees.

As discussed with the Examiner during the telephonic interview, independent claim 1 as currently presented recites: "*...wherein said driving circuit is configured and operable to produce said oscillating driving voltage at a transmission frequency* ***substantially different from said characteristic resonant frequency of said inductive couple***" (emphasis added).

Similarly, independent claim 17 as currently presented recites: "*...wherein said oscillating driving voltage has a transmission frequency* ***substantially different from said characteristic resonant frequency of said inductive couple***" (emphasis added).

The Applicant notes that the term "*substantially different from said characteristic resonant frequency*" is used in the specification at least in paragraph [0161]. The meaning of the term is further illustrated in Fig. 6b which shows a graph showing how the amplitude of the operational voltage varies according to the transmission frequency and indicates that the required transmission frequency is shifted away from the resonant peak of the graph. Paragraph [0161] of the current application is cited in its entirety below:

> *[0161] It is a particular feature of embodiments of the current invention that the driver 6230 (FIG. 6a) is configured and operable to transmit a driving voltage which oscillates at a transmission frequency which is* ***substantially different from the resonant frequency of the inductive couple****. Preferably the transmission frequency is selected to lie within one of the near-linear regions 6, 8 where the slope of the frequency-amplitude graph is less steep.*

The claims must be interpreted in light of the specification as they would be understood by one of ordinary skill in the art. As such, one having ordinary skill in the art would appreciate that the term "*substantially different from said characteristic resonant frequency*" recited in claims 1 and 17, in view of at least Fig. 6b, should be interpreted to mean that the frequency of the driving voltage is selected so as to lie within one of the near-linear regions of a frequency-amplitude graph associated with the inductive couple.

By contrast, Malpas describes systems at which the transmission frequency is selected to be as close as possible to the resonant natural frequency of the pick-up. Consequently, Malpas ***teaches away from*** the invention recited in claims 1 and 17, as currently presented, in which the transmission frequency of the driving voltage is selected to be substantially different from the characteristic resonant frequency of the inductive couple.

Moreover, Malpas describes the need for first tuning the frequency on the primary side to match the pick-up, even when the pick-up is subsequently detuned (using tuning capacitors) to control power.

> The invention advantageously allows frequency, voltage and vectoring of the field to be varied on the primary side and detuning to be used on the pick-up side to allow effective control of the power available to, or supplied by, the pick-up. Those skilled in the art will appreciate that these control parameters may be used in any desired combination. For example, ***primary frequency tuning may be used to find the resonant frequency of the pick-up, after which primary voltage variation (or pick-up detuning) may be used to match power flow to immediate power need.*** (Malpas page 19 lines 33 to page 20 line 3; emphasis added)

A person having ordinary skill in the art, upon reading Malpas, would have understood that in order to transmit power to a remote pick-up, it would be necessary to use a transmission frequency ***at or*** near ***to the resonant frequency of the pick-up*** (as opposed to the invention recited in instant claims 1 and 17, as currently presented, wherein the transmission frequency is selected to be ***different*** from the characteristic frequency of the inductive couple formed between the primary and secondary coils).

For at least this reason alone, the applicants believe that not only does Malpas fail to anticipate or render obvious instant claims 1 and 17, but it teaches away from the invention recited therein.

Accordingly, the Applicants, therefore, respectfully request that the Examiner withdraw the 35 USC §103 rejections relating to the subject matter of former claims 1 and 17 as well as from claims 4-16, 18 and 19 which depend therefrom.

Summary

Applicant has made a genuine effort to respond to the rejections and advance prosecution of this application. Applicant respectfully submits that all formal and substantive requirements for patentability have been met and that this case is in condition for allowance, which action is respectfully requested.

The Examiner is requested to telephone the undersigned to discuss resolution of any remaining issues.

No additional fee is believed be due as a result of filing this paper. However, please charge any fees or credit any overpayments as a result of the filing of this paper to Deposit Account No. 02-3978.

Respectfully submitted,

Yossi AZANCOT

By: /David S. Bir/
David S. Bir
Reg. No. 38,383
Attorney/Agent for Applicant

Date: March 30, 2015

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Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351

Electronic Acknowledgement Receipt

EFS ID:	21913984
Application Number:	14152358
International Application Number:	
Confirmation Number:	8993
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Customer Number:	22045
Filer:	David S. Bir
Filer Authorized By:	
Attorney Docket Number:	POWM0130PUSA1
Receipt Date:	30-MAR-2015
Filing Date:	10-JAN-2014
Time Stamp:	15:41:26
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		Response.pdf	59872 dea3b6a67804ea827f170bf3cb311064cd519fdb	yes	9

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Response After Final Action	1	1
	Claims	2	5
	Applicant Arguments/Remarks Made in an Amendment	6	9
Warnings:			
Information:			
	Total Files Size (in bytes):	59872	

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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 Substitute for Form PTO-875	Application or Docket Number 14/152,358	Filing Date 01/10/2014	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)		
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ 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)		
	03/30/2015	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	* 17	Minus	** 20	= 0	X $80 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $420 =	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)		
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ 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.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** 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.

LIE
/GYZELL JOHNSON SMITH/

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.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/152,358	01/10/2014	Yossi AZANCOT	POWM0130PUSA1	8993

22045 7590 03/05/2015

BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075

EXAMINER	
FLEMING, FRITZ M	

ART UNIT	PAPER NUMBER
3649	

NOTIFICATION DATE	DELIVERY MODE
03/05/2015	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):

docketing@brookskushman.com

Applicant-Initiated Interview Summary	**Application No.** 14/152,358	**Applicant(s)** AZANCOT ET AL.	
	Examiner FRITZ M. FLEMING	**Art Unit** 3649	

All participants (applicant, applicant's representative, PTO personnel):

(1) *FRITZ M. FLEMING*.

(2) *Jonathan Ross*.

(3) *Michael Morris*.

(4)_____.

Date of Interview: *26 February 2015*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☒103 ☐Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *1-17*.

Identification of prior art discussed: *Malpas*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Discussed claims 1 and 17. Reviewed the claim language, specification, and Malpas. Discussion was directed to Figure 6B and paragraphs [0160+] and the "substantially different from said characteristic resonant frequency of said inductive couple" in the context of the specification and the driving circuit and the driving voltage. Discussed how driving in such a manner is different than adjusting power or a sweeping of power per Malpas. Agreement was reached that remarks directed to the claim language, Malpas, Figure 6B, and [0160+] would overcome the rejection of record .

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.

☐ Attachment

/FRITZ M FLEMING/ Primary Examiner, Art Unit 3649	

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

———

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

PTO/SB/84 (11-08)
Approved for use through 11/30/2011. OMB 0651-0035
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AUTHORIZATION TO ACT IN A REPRESENTATIVE CAPACITY

In re Application of: Powermat Technologies, Ltd.	
Application No. 14/152,358	
Filed: Jan 10, 2014	
Title: Transmission-guard system and method for an inductive power supply	
Attorney Docket No. POW0130PUSA1	Art Unit: 3649

The practitioner named below is authorized to conduct interviews and has the authority to bind the principal concerned. (Note: pursuant to 37 CFR 10.57(c), a practitioner cannot authorize other registered practitioners to conduct interviews without consent of the client after full disclosure.) Furthermore, the practitioner is authorized to file correspondence in the above-identified application pursuant to 37 CFR 1.34:

Name	Registration Number
Jonathan Ross	73094

This is not a Power of Attorney to the above-named practitioner. Accordingly, the practitioner named above does **not** have authority to sign a request to change the correspondence address, a request for an express abandonment, a disclaimer, a power of attorney, or other document requiring the signature of the applicant, assignee of the entire interest or an attorney of record. If appropriate, a separate Power of Attorney to the above-named practitioner should be executed and filed in the United States Patent and Trademark Office.

SIGNATURE of Applicant or Attorney of Record

Signature	Powermat Technologies Ltd	Date 02/26/15
Name	Tiki Elisha	Registration No., if applicable
Telephone	972-54-4383864	

This collection of information is required by 1.31, 1.32 and 1.34. 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 3 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.

Electronic Acknowledgement Receipt

EFS ID:	21593045
Application Number:	14152358
International Application Number:	
Confirmation Number:	8993
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Customer Number:	22045
Filer:	Jonathan M. Ross/Debbie Harris
Filer Authorized By:	Jonathan M. Ross
Attorney Docket Number:	POWM0130PUSA1
Receipt Date:	25-FEB-2015
Filing Date:	10-JAN-2014
Time Stamp:	11:17:53
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	Power of Attorney	sb84_signed_US2C.pdf	954973 e21c9406c5055f368908d86722e34b2c703efbea	no	1

Warnings:	
Information:	

Total Files Size (in bytes):	954973

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.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/152,358	01/10/2014	Yossi AZANCOT	POWM0130PUSA1	8993

22045 7590 01/20/2015

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SOUTHFIELD, MI 48075

EXAMINER	
FLEMING, FRITZ M	

ART UNIT	PAPER NUMBER
3649	

MAIL DATE	DELIVERY MODE
01/20/2015	PAPER

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.

Office Action Summary	Application No. 14/152,358	Applicant(s) AZANCOT ET AL.	
	Examiner FRITZ M. FLEMING	Art Unit 3649	AIA (First Inventor to File) Status No

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

Period for Reply

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

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

Status

1)☒ Responsive to communication(s) filed on *12/30/14*.

☐ 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 and 4-19* 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 and 4-19* 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 _____ 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: _____.

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

DETAILED ACTION

Terminal Disclaimer

2. The terminal disclaimer filed on 12/30/14 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 14/152,368 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Arguments

3. Applicant's arguments filed 12/30/14 have been fully considered but they are not persuasive.

4. Applicant has amended the claims to include “substantially different” and pointed to support. Hence the rejection is overcome.

5. Claim 1 has been to recite an “alignment mechanism” which is what Malpas is and does by compensating for the implant that is moveable within the region, such as with the multiple coils and field vector orientation. A tether is not required to align the primary and secondary. The claim does not specify any sort of structure. Claim 1 has also been amended to include a switching unit in the driving circuit, such being shown in Figure 3 and operable to provide an oscillating driving voltage at a frequency that can be substantially different from the characteristic inductive couple resonant frequency as will be explained below.

6. New claim 13 recites a magnetic alignment mechanism. Page 19 of Malpas suggests use in fields outside of biology in areas such as miniaturized industrial sensors, and thus the use of a known alignment technique is obvious subject matter. Official notice is taken of such, as Bozzone et al. is easily procured to show magnet assisted alignment for charging. Thus to use a known alignment mechanism to assist in charging, for example with the industrial sensors, would have been obvious to one having ordinary skill in the art.

7. New claims 14 and 15 and 16 recite audible or visual or tactile indications, but do not specify what is being indicated. However, since Malpas contemplates the sending back of physiological data sensed by the biosensor, it would have been obvious to provide some sort of feedback indicative of the sensed data. For example, heating is a mentioned concern at the top of page 10, so providing audible and or visual feedback of an undesired heating situation is simply the application of routine and ordinary skill in the art, as providing an indication of data sensed is not inventive. New claim 17 is a broadened method of claim 1, and hence rejected for the same reasoning. New claims 18 and 19 represent incremental increasing and decreasing of the transmission frequency, discussed below.

8. Applicants' arguments focus on the" lock on" of the "lock on to a resonant or near resonant frequency of the pick-up and control the power available to it" while not considering the disclosure of pages 16-19 as a whole when it comes to the also mentioned "control the power available to it". Page 16 is clear that component values can vary over time, resonant frequencies may vary from component to component, that

moving the frequency of oscillation toward or away from the natural resonant frequency of the pick up more or less power will be transferred to the pick-up, a frequency sweep from a low frequency to a higher frequency or vice versa can identify a resonant frequency, and that variation of the field frequency also allows control of multiple pickups by providing pick-ups with distinct different resonant frequencies so that the field selectively makes power available to each pick up. This is important, as one of ordinary skill in the art will readily realize that moving the frequency away from, either higher or lower, from the resonant frequency will provide less power to the pick-up. When multiple pick-ups with distinct different resonant frequencies are used, one of ordinary skill in the art will realize that the resonant frequency for one pick up may be above or below that of the others. Thus taken as a whole, Malpas teaches that the transmitted frequency can go either above or below the actual resonant frequency in order to decrease the power sent to the pick-up. Thus in effect, Malpas teaches that it is known to use a non-resonant transmission frequency to provide decreased power to the pick-up, and this non-resonant frequency can either be above or below the resonant frequency, as moving “away” can be in either direction, and such can be “substantial” when dealing with high-Q circuits.

9. Applicants also argue Malpas pages 19-20 to teach only a resonant power transfer, when it clearly mentions detuning to match immediate power need to immediate power flow. Again, it is clear that Malpas teaches to one of ordinary skill in the art that the frequency can be changed to control the amount of power transmitted to the pick-up. Again, applicants are too narrowly interpreting the teachings of Malpas.

10. Turning to the claim, a “transmission frequency substantially different from said characteristic resonant frequency of said inductive couple” is not specific as to the frequency. For example, simple power control by moving the frequency away from the resonant frequency in an upward (i.e. higher) direction as taught by Malpas will meet this limitation. It is also met in a frequency sweep if the sweep starts from a higher frequency and then detects a lower frequency pickup, as the initial starting point is non-resonant and higher than the resonant frequency. When it comes to an "incremental value" for the feedback control, such is rendered obvious by Malpas, when considering that the frequency can be adjusted in a ”sweep”. By sweeping the frequency, the frequency is changed from one value to another, the change either has to be done in an incremental manner via a continuous analog manner or a digital manner of discreet steps.

11. Applicants also argue that Malpas uses only the resonant frequency of the pick-up and not of the couple. This is incorrect, as page 10 clearly states that the tuning capacitor (48) provides the desired resonant frequency and the resonance of the resonant circuit can be varied to tune the electromagnetic field to the desired frequency. Thus the primary power supply is also resonant and thus forms an inductive resonant couple.

Claim Rejections - 35 USC § 103

12. When referring to Malpas, the first published WIPO PCT document is being referred to as it has the earliest publication date of 23 March 2006, which will qualify under 102(b) as it is more than 1 year before any claimed priority dates.

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

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

14. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. This application currently names joint inventors. In considering patentability of the claims under pre-AIA 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of pre-AIA 35 U.S.C. 103(c) and potential pre-AIA 35 U.S.C. 102(e), (f) or (g) prior art under pre-AIA 35 U.S.C. 103(a).

16. Claims 1,4-19 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Malpas.

17. For claim 1, Malpas clearly shows all of the claimed structure. For example, please take note of the inductive power transfer system, as shown in the drawings. A platform is seen as the floor of the Figure 6a-e coil locations, noting that the description of page 12 sets forth that the coils may be in the floor, thus a floor providing a platform for the inductive power receiver in the animal to be supported upon. The coil being described as “in” the floor renders obvious an “embedded in the platform”, as an animal enclosure would benefit from an embedded coil structure as such would make for an easier setup to maintain, especially when it comes to cleaning up in the enclosure and any possible water or food spills from the eating or drinking or resting locations. More specifically speaking, at least one inductive power outlet comprising at least one primary inductive coil (100,46) wired to a power supply (32) via a driver (34-42) as is clearly seen in Figure 3 and as described at page 10, such that switches (40,42) intermittently connect the coil to the source to achieve the desired resonant frequency. The characteristic resonant frequency is described at page 10 being a resonant frequency and given as 200kHz. A secondary inductive coil (i.e. 120) is inductively coupled to the primary, and is also wired to an electric load (biosensor 124, battery 126) as is clearly seen in Figure 12. The secondary inductive coil (120) is associated with an inductive power receiver being the entire inductive pickup and biosensor. As has been described in conjunction with Figure 3, the driver operates at the resonant frequency of the inductively coupled system, namely 200kHz, as per page 16, the pick-up is at the same

natural resonant frequency and at a high Q. Page 16 describes how the magnetic field frequency of oscillation can be changed by moving the frequency toward or away from the natural resonant frequency, and thereby provide more or less power to be transferred to the pick-up. Thus it is obvious to one having ordinary skill in the art reading the disclosure of Malpas that by moving the frequency of oscillation to control the power transferred to the inductive pick up that the primary inductive coil is being driven at a frequency significantly or substantially different from the resonant frequency of the system. This is known because the system is operated at a high Q and thus moving the driven frequency away from the resonant frequency controls the amount power transferred to the inductive load. This is seen, for example, at the discussion of the pages 18-19 which shows how the frequency is lowered at the perimeter in order to reduce the power supplied to the pick-up to remain at the center normalized 13mW. For claims 4 and 5 (as well as new claims 18 and 19), when taking the disclosure as a whole, this frequency control in conjunction with feedback of Figure 8 and the disclosed pick-up transmitter (112) and receiver, as well as the feedback control of page 13, the controller and power supply control (114-116) certainly tells one of ordinary skill in the art that the drive frequency of the primary coil is changed from the resonant frequency to adjust the transmitted power, thus requiring that the transmission frequency be increased and decreased accordingly. Since the feedback information is processed at the driver receiver and controller (114,115), it is obvious that the load be abler to tell the controller which way to adjust the frequency. The description of Figure 12 describes how the power flow controller senses the power required by the biosensor as well as the

power available at the pick-up, so that the total power demand and power available can be sent back via the transceiver for appropriate feedback control of the frequency. Since the biosensor unit is capable of determining if more or less power is needed, and such is transmitted to the primary coil driver via the receiver (114) at the driver (hence the claimed signal detector) and there obviously must exist an adapted detection ability to discern between a first signal for frequency increase and a second signal for frequency decrease at the receiver, as the disclosure as a whole describes how the frequency is changed off of the resonant frequency to control the power. Basic engineering skill dictates a basic knowledge of feedback control, and Malpas has outlined at a system level how to do this, and thus to provide a feedback control system based upon a simplistic frequency up/down command from the secondary to primary is an obvious implementation consistent with ordinary skill in the art. As discussed above, a high-Q system has a rather narrow shape and thus any off resonant frequency that still allows for power control will be in the linear range. For claims 6 and 7, page 17 describes how the power needed by and provided to the load are processed to determine if more or less power, and thus the direction of frequency adjustment, is needed. For claim 8, a radio receiver is mentioned for feedback control. For claim 9, please note the voltage and phase detection (52) of the primary coil, as feedforward control id also mentioned at page 13 which discusses the monitoring of the power delivered to the primary coil. For claim 10, note that frequency sweeps to detect resonance are mentioned at page 16, as well as the detection of metal objects at page

19 requires the ability to detect significant increases. For claim 11, a full bridge rectifier is suggested at page 17. For claim 12, an implanted device is described.

18. Claim 1 has also been amended to include a switching unit in the driving circuit, such being shown in Figure 3 and operable to provide an oscillating driving voltage at a frequency that can be substantially different from the characteristic inductive couple resonant frequency as was explained above.

19. New claim 13 recites a magnetic alignment mechanism. Page 19 of Malpas suggests use in fields outside of biology in areas such as miniaturized industrial sensors, and thus the use of a known alignment technique is obvious subject matter. Official notice is taken of such, as Bozzone et al. is easily procured to show magnet assisted alignment for charging. Thus to use a known alignment mechanism to assist in charging, for example with the industrial sensors, would have been obvious to one having ordinary skill in the art.

20. New claims 14 and 15 and 16 recite audible or visual or tactile indications with the alignment mechanism, but do not specify what condition is being indicated (i.e. the claim does not specify the indicator is for an aligned or misaligned condition). However, since Malpas contemplates the sending back of physiological data sensed by the biosensor, it would have been obvious to provide some sort of feedback indicative of the sensed data. For example, heating is a mentioned concern at the top of page 10, so providing audible and or visual or tactile feedback of an undesired heating situation is simply the application of routine and ordinary skill in the art, as providing an indication of data sensed is not inventive. New claim 17 is a broadened method of claim 1, and

hence rejected for the same reasoning. New claims 18 and 19 have been addressed above.

Conclusion

21. **THIS ACTION IS MADE FINAL.** 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 mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRITZ M. FLEMING whose telephone number is (571)272-4145. The examiner can normally be reached on M-F, 0900-1730.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darnell M. Jayne can be reached on 571-272-7723. 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.

FRITZ M FLEMING
Primary Examiner
Art Unit 3649

/FRITZ M FLEMING/
Primary Examiner, Art Unit 3649

Notice of References Cited	Application/Control No. 14/152,358	Applicant(s)/Patent Under Reexamination AZANCOT ET AL.	
	Examiner FRITZ M. FLEMING	Art Unit 3649	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-7,026,789	04-2006	Bozzone et al.	320/108
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*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.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14152358	AZANCOT ET AL.
	Examiner	**Art Unit**
	FRITZ M FLEMING	2836

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

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

CLAIM		DATE								
Final	Original	09/29/2014								
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	12	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14152358	AZANCOT ET AL.
	Examiner	Art Unit
	FRITZ M FLEMING	2836

CPC- SEARCHED		
Symbol	Date	Examiner
H02J17/00	9/29/2014	FMF

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
307	104	9/29/2014	FMF
320	108	9/29/2014	FMF

SEARCH NOTES		
Search Notes	Date	Examiner
EAST, reviewed related applications and patents.	9/29/2014	FMF
updated search.	1/12/2015	FMF

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/FRITZ M FLEMING/ Primary Examiner.Art Unit 2836

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	9	("20050189910" | "20070103110" | "3414796" | "4349814" | "4580062" | "5455467" | "7278310" | "8049370" | "RE31524").PN.	US-PGPUB; USPAT	OR	OFF	2015/01/12 14:57
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S39	345	S35 and detun$	US-PGPUB; USPAT	OR	ON	2014/09/26 23:18
S40	7021	(inductive or wireless or noncontact or contactless) same (power or energy) same transfer same frequency	US-PGPUB; USPAT	OR	ON	2014/09/26 23:23
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S44	2	("7675339" | "8310286").PN. OR ("8570080").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2014/09/27 11:58
S45	12	"frequency controller" and (inputs same increase same decrease)	USPAT	OR	OFF	2014/09/27 11:59
S46	18	"frequency controller" and (inputs same	US-PGPUB	OR	OFF	2014/09/27

		increase same decrease)				12:01
S47	43	"frequency controller" and (inputs same up same down)	US-PGPUB	OR	OFF	2014/09/27 12:02
S48	71	"frequency controller" and (inputs same up same down)	USPAT	OR	OFF	2014/09/27 12:04
S49	234	"frequency generator" and (inputs same up same down)	USPAT	OR	OFF	2014/09/27 12:09
S50	0	"frequency generator" and (inputs same up same down)	EPO	OR	OFF	2014/09/27 12:10
S51	1	"frequency generator" and (inputs same up same down)	JPO	OR	OFF	2014/09/27 12:10
S52	11	"frequency generator" and (inputs same up same down)	DERWENT	OR	OFF	2014/09/27 12:10
S53	234	"frequency generator" and (inputs same up same down)	USPAT	OR	OFF	2014/09/27 12:11
S54	22	("4042891" | "4115744" | "4387347" | "4463321" | "5204640" | "5570054" | "5687261" | "5696951" | "5949290" | "6329648" | "6373740" | "6433596" | "6525618" | "6556089" | "6593821" | "6622370" | "6741109" | "6816020" | "7085336" | "7119591" | "RE27092").PN. OR ("7215208").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2014/09/27 12:34
S55	1202	"clock generator" and (inputs same up same down)	USPAT	OR	OFF	2014/09/27 12:35
S56	149	"clock generator" same (inputs same up same down)	USPAT	OR	OFF	2014/09/27 12:35
S57	141	"programmable frequency generator"	USPAT	OR	OFF	2014/09/27 12:39
S58	199	"frequency sweep" same up same down	USPAT	OR	OFF	2014/09/27 12:46
S59	2922	(307/104).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/09/27 12:55
S60	2922	S59	US-PGPUB; USPAT	OR	OFF	2014/09/27 12:55
S61	2128	S59 and (frequency sam up same down)	US-PGPUB; USPAT	OR	OFF	2014/09/27 12:55
S62	94	S59 and (frequency same up same down)	US-PGPUB; USPAT	OR	OFF	2014/09/27 12:55
S63	5344	h02j17/00.cpc.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT	OR	ON	2014/09/27 13:16
S64	34	S63 and (frequency same up same down)	US-PGPUB; USPAT	OR	OFF	2014/09/27 13:16
S65	34	S63 and (frequency same sweep)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:20
S66	97	S59 and (frequency same sweep)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:22
S67	1938	S59 and (frequency same power)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:27
S68	1985	S59 and (frequency same power samew adjust)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:27
S69	590	S59 and (frequency same power same	US-PGPUB;	OR	ON	2014/09/27

		adjust)	USPAT			13:27
S70	732	S59 and (frequency near3 adjust$)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:28
S71	477	S59 and (frequency same increase same decrease)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:32
S72	174	S59 and (frequency near5 increase near5 decrease)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:33
S73	985	S59 and (frequency same power same efficiency)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:33
S74	332	(wireless$ or noncontact$ or inductive$ or contactless$) and power and transfer and (frequency and power and efficiency)	EPO; JPO; DERWENT	OR	ON	2014/09/27 13:43
S75	82998	(wireless$ or noncontact$ or inductive$ or contactless$) and power and transfer and (frequency and power and efficiency)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:58
S76	1136	(wireless$ or noncontact$ or inductive$ or contactless$) same power same transfer same (frequency same power same efficiency)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:58
S77	5295	307/104.ccls. or 320/108.ccls. or h02j17/00.cpc.	US-PGPUB; USPAT	OR	ON	2014/09/27 14:49
S78	595	S77 and (frequency same feedback)	US-PGPUB; USPAT	OR	ON	2014/09/27 14:50
S79	2	powermat and dru	USPAT	OR	OFF	2014/09/27 15:30
S80	144	"5455466"	USPAT	OR	OFF	2014/09/28 22:34
S81	3178	(307/104).CCLS.	US-PGPUB; USPAT	OR	OFF	2015/01/12 12:49
S82	2093	(320/108).CCLS.	US-PGPUB; USPAT	OR	OFF	2015/01/12 12:50
S83	1656	h02j17/00.cpc.	US-PGPUB; USPAT	OR	OFF	2015/01/12 12:50
S84	6135	h02j17/00.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/01/12 12:50

EAST Search History (Interference)

<This search history is empty>

1/12/2015 3:41:05 PM
C:\Users\ffleming\Documents\EAST\Workspaces\powermat.wsp

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Yossi AZANCOT

Group Art Unit: 2836

Examiner: FLEMING, FRITZ M.

Serial No.: 14/152,358

Filed: January 10, 2014

For: TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Attorney Docket No.: POWM 0130 PUSA1

AMENDMENT UNDER 37 C.F.R. § 1.111

Mail Stop Amendment
Commissioner for Patents
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

In response to the Office Action mailed September 30, 2014, please amend the above-identified application as follows:

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An ~~inductive power transfer system comprising at least one~~ inductive power outlet operable to transfer power to an inductive power receiver, said inductive power outlet comprising:

a platform for supporting said inductive power receiver;

at least one primary inductive coil embedded in said platform~~, said primary inductive coil~~;

an alignment mechanism configured to facilitate alignment between said primary inductive outlet and said inductive power receiver such that an inductive couple is formed between said primary inductive coil and a secondary inductive coil of said inductive power receiver, said inductive couple having a characteristic resonant frequency; and

a driving circuit ~~driver~~ wired to said primary inductive coil, said driving circuit comprising a switching unit configured and operable to provide ~~a~~ an oscillating driving voltage across said primary inductive coil such that a secondary voltage is induced in the secondary inductive coil;

wherein said driving circuit is configured and operable to produce said oscillating driving voltage;

~~wherein:~~

~~said primary inductive coil is configured to form an inductive couple having a characteristic resonant frequency with at least one secondary inductive coil wired to an electric load, said secondary inductive coil associated with said inductive power receiver; and~~

~~said driving voltage oscillates~~ at a transmission frequency ~~significantly~~ substantially different from said characteristic resonant frequency of said inductive couple.

2. (Cancelled)

3. (Cancelled)

4. (Currently Amended) The inductive power outlet ~~system~~ of claim 1 said inductive power outlet comprising a signal detector adapted to detect a first signal and a second signal, and said driver is configured to:

increase said transmission frequency when said first signal is detected by the detector, and

decrease said transmission frequency when said second signal is detected by the detector.

5. (Currently Amended) The inductive power outlet ~~system~~ of claim 1 said driver being configured to adjust said transmission frequency in response to feedback signals.

6. (Currently Amended) The inductive power outlet ~~system~~ of claim 5 wherein said feedback signals carry data pertaining to the operational parameters of said electric load.

7. Currently Amended) The inductive power outlet ~~system~~ of claim 6 wherein said operational parameters are selected from the group consisting of:

required operating voltage for said electric load;
required operating current for said electric load;
required operating temperature for said electric load;
required operating power for said electric load;
measured operating voltage for said electric load;
measured operating current for said electric load;
measured operating temperature for said electric load;
measured operating power for said electric load;
power delivered to said primary inductive coil;
power received by said secondary inductive coil, and
a user identification code.

8. (Currently Amended) The inductive power outlet ~~system~~ of claim 4 wherein said detector is selected from the list comprising optical detectors, radio receivers, audio detectors and voltage peak detectors.

9. (Currently Amended) The inductive power outlet ~~system~~ of claim 1 wherein said driver further comprises a voltage monitor for monitoring the amplitude of a primary voltage across said primary coil.

10. (Currently Amended) The inductive power outlet ~~system~~ of claim 9 wherein said voltage monitor is configured to detect significant increases in primary voltage.

11. (Currently Amended) The inductive power outlet ~~system~~ of claim 1 comprising a power converter selected from the group comprising: a transformer, a DC-to-DC converter, an AC-to-DC converter, an AC-to-AC converter, a flyback transformer, a flyback converter, a full-bridge converter, a half-bridge converter and a forward converter.

12. (Currently Amended) The inductive power outlet ~~system~~ of claim 1 incorporated into at least one application selected from a group consisting of: inductive chargers, inductive power adaptors, power tools, kitchen appliances, bathroom appliances, computers, media players, office equipment, implanted devices, pace makers, trackers and RFID tags.

13. (New) The inductive power outlet of claim 1 wherein said alignment mechanism comprises a first magnetic element configured to engage a second magnetic element associated with the power receiver.

14. (New) The inductive power outlet of claim 1 wherein said alignment mechanism comprises an audible indication.

15. (New) The inductive power outlet of claim 1 wherein said alignment mechanism comprises a visual indication.

16. (New) The inductive power outlet of claim 1 wherein said alignment mechanism comprises a tactile indication.

17. (New) A method for transferring power from an inductive power outlet to an inductive power receiver, said method comprising:

providing at least one primary inductive coil embedded in a platform;

forming an inductive couple between said primary inductive coil and a secondary inductive coil of said inductive power receiver, said inductive couple having a characteristic resonant frequency; and

providing an oscillating driving voltage across said primary inductive coil such that a secondary voltage is induced in the secondary inductive coil, wherein said oscillating driving voltage has a transmission frequency substantially different from said characteristic resonant frequency of said inductive couple.

18. (New) The method of claim 17 further comprising increasing said transmission frequency by an incremental value when a signal of a first type is detected from said inductive power receiver.

19. (New) The method of claim 17 further comprising decreasing said transmission frequency by an incremental value when a signal of a second type is detected from said inductive power receiver.

Remarks

In the Office Action mailed September 30, 2014, claims 1-12 were rejected under 35 U.S.C. § 112(b) or 35 U.S.C. § 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter. Claims 1-12 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Malpas. Claims 1-12 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-20 of copending Application No. 14/152,368.

Applicants have amended claim 1 to more particularly point out the claimed subject matter to expedite allowance. Support for the current amendments to the claims may be found in the specification as filed at least in paragraphs [0012], [0074] and in claim 2 as formerly presented. Applicants have cancelled claims 2 and 3 in light of the amendments to claim 1, and have added new claims 13-19.

Claims 13-16 have been added in view of the amendments to claim 1. Support for the new claims 13-16 may be found in the specification as filed at least in paragraph [0013] and [0074]. Claims 17-19 are method claims broadly paralleling the device claims. Support for claims 17-19 may be found at least in former claims 1 and claim 4.

Claims 1 and 4-19 are pending, with claims 1 and 17 being independent. Claims 2 and 3 have been cancelled. Claims 1, 4-6, and 8-12 have been amended. Claims 13-19 have been added. Reconsideration and re-examination of the application as amended is respectfully requested.

Rejections under 35 U.S.C. § 112

Claims 1-12 stand rejected under 35 U.S.C. § 112(b) as being indefinite. The examiner states that the term "significantly" in former claim 1 is a relative term which renders the claim indefinite. Applicant respectfully disagrees and traverses the rejection. However, this rejection is moot in light of the current amendments.

In order to better clarify the claimed subject matter, the term "significantly different" has been amended without prejudice in claim 1 to recite "substantially different". The Applicant notes that this term is used in the specification at least in paragraph [0160]. The meaning of the term is further illustrated in Fig. 6b which shows a graph showing how the amplitude of the operational voltage varies according to the transmission frequency and indicates that the required transmission frequency is shifted away from the resonant peak of the graph. The claims must be interpreted in light of the specification as they would be understood by one of ordinary skill in the art. As such, the claims interpreted in light of the specification, at least with respect to Fig. 6b teach one of ordinary skill in the art what is meant by "substantially different" as disclosed and claimed by Applicant.

The examiner further states that there is also some degree of uncertainty as to the "linear" aspect of the graph. The Applicant notes that as currently amended all references to the "linear" aspect of the graph have been deleted without prejudice, thereby also rendering this objection moot.

In view of the amendments, Applicant respectfully requests that the Examiner reconsider and withdraw the 35 U.S.C. § 112 rejection of claims 1 as well as from claims 4-16 which depend therefrom.

Rejections under 35 USC §103

Claims 1-12 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Malpas. The examiner states that Malpas shows all of the claimed structure recited in former claim 1. The examiner notes the inductive power transfer system, as shown in Malpas's drawings. Particularly, the examiner notes the floor of the Figure 6a-e coil locations, and the description of page 12 allegedly showing that the coils may be in the floor providing a platform for the inductive power receiver in the animal to be supported upon.

The examiner further notes that Malpas's inductive power outlet allegedly comprises at least one primary inductive coil (100,46) wired to a power supply (32) via a driver (34-42), referring to Figure 3 and the description on page 10, such that switches (40,42)

intermittently connect the coil to the source to achieve the desired resonant frequency (claim 2) of 200kHz.

The examiner further states that Malpas allegedly describes a secondary inductive coil (i.e., 120) inductively coupled to the primary coil, and also wired to an electric load (biosensor 124, battery 126) and that the driver operates at the resonant frequency of the inductively coupled system, namely 200kHz.

Applicant respectfully disagrees and traverses the rejection for at least the following reasons..

As currently presented, claim 1 has been amended to recite:

> *An inductive power outlet operable to transfer power to an inductive power receiver, said inductive power outlet comprising:*
>
> *a platform for supporting said inductive power receiver;*
>
> *at least one primary inductive coil embedded in said platform;*
>
> *an alignment mechanism configured to facilitate alignment between said primary inductive outlet and said inductive power receiver such that an inductive couple is formed between said primary inductive coil and a secondary inductive coil of said inductive power receiver, said inductive couple having a characteristic resonant frequency; and*
>
> *a driving circuit wired to said primary inductive coil, said driving circuit comprising a switching unit configured and operable to provide an oscillating driving voltage across said primary inductive coil such that a secondary voltage is induced in the secondary inductive coil;*
>
> *wherein said driving circuit is configured and operable to produce said oscillating driving voltage at a transmission frequency substantially different from said characteristic resonant frequency of said inductive couple.*

As a first matter, Applicant notes that as currently amended claim 1 recites two different frequencies:

1) a "transmission frequency" – this being the rate at which the switching unit of the driving circuit produces the oscillating driving voltage, and
2) a "characteristic resonant frequency of the inductive couple" – this being the natural frequency of oscillation of the inductive couple formed between the primary coil and the secondary coil, which is also the frequency at which the amplitude of voltage induced in the secondary coil peaks.

It is a feature recited in claim 1 that these two frequencies do not have the same value. Accordingly the driving circuit of amended claim 1 is "*configured and operable to produce said oscillating driving voltage* ***at a transmission frequency substantially different from said characteristic resonant frequency of said inductive couple***".

In contradistinction, Malpas describes a system in which there is no one-to-one relationship between the transmitter and the receiver. Thus Malpas does not relate to the characteristic resonant frequency of the inductive couple at all, but rather to the resonant frequency of the pick-up alone. Accordingly, Malpas's transmitter needs to tune itself to the resonant natural frequency of each target pick-up. This is explicit in Malpas, for example:

> It is desirable to have pick-ups with a high Q factor to improve the quality of the resonant response in the pick-up and thus maximize power transfer. A problem with using high Q circuits at a practical level is that component tolerances mean that it is difficult to provide pick-ups having the same resonant frequency. Also, component values can vary over time. Variation of field frequency also allows power to be provided to pick-ups having resonant circuits of a high Q factor. This is because the primary *supply* can perform a frequency sweep from a low frequency to a higher frequency, or vice versa, until feedback shows that the pick-up has been energized, and from the feedback provided by the biosensor ***the primary can lock onto a resonant, or near resonant, frequency of the pick-up and control the power available to it***. Variation of field frequency also allows control of multiple pick-ups by ***providing pick-ups with distinct different resonant frequencies so that the field selectively makes power available to each pick-up***. (Malpas page 21 lines 26-32; emphasis added)

Thus it is clear that Malpas describes systems at which the transmission frequency is selected to be as close as possible to the resonant natural frequency of the pick-up. Consequently, Malpas ***teaches away from*** the invention recited in claim 1, as currently presented, in which the transmission frequency is deliberately selected to be substantially different from the characteristic resonant frequency of the inductive couple.

Indeed, Malpas describes the need for first tuning the frequency on the primary side to match the pick-up, even when the pick-up is subsequently detuned (using tuning capacitors) to control power.

> The invention advantageously allows frequency, voltage and vectoring of the field to be varied on the primary side and detuning to be used on the pick-up side to allow effective control of the power available to, or supplied by, the pick-up. Those skilled in the art will appreciate that these control parameters may be used in any desired combination. For example, ***primary frequency tuning may be used to find the resonant frequency of the pick-up, after which primary voltage variation (or pick-up detuning) may be used to match power flow to immediate power need.*** (Malpas page 19 lines 33 to page 20 line 3; emphasis added)

A person having ordinary skill in the art, upon reading Malpas, would have understood that in order to transmit power to a remote pick-up, it would be necessary to use a transmission frequency ***at or near to the resonant frequency of the pick-up*** (as opposed to the invention recited in instant claim 1, wherein the transmission frequency is selected to be ***different*** from the characteristic frequency of the inductive couple formed between the primary and secondary coils).

For at least this reason alone, Applicant believes that not only does Malpas fail to anticipate or render obvious instant claim 1, but it teaches away from the invention recited therein.

Moreover, Applicant maintains that Malpas fails to anticipate or render obvious the subject matter recited in claim 1 as originally presented. Nevertheless, notwithstanding the above arguments and in order to expedite allowance of the claims, Applicant has amended claim 1 to further include "*an alignment mechanism configured to facilitate alignment between said primary inductive outlet and said inductive power receiver*". Literal support for the alignment mechanism to the claims may be found, e.g., in element 500 of Fig. 1C of the current application specification as well as in in paragraph [0074].

Applicant notes that Malpas clearly teaches away from the use of any alignment mechanism as it would be undesirable and impractical to tether the animals bearing Malpas's biosensor.

For at least this reason too Applicant believes that Malpas fails to anticipate or render obvious claim 1 as currently amended. Applicant therefore respectfully requests that the

Examiner withdraw the 35 U.S.C. § 103 rejections relating to the subject matter of former claim 1 as well as from claims 4-16 which depend therefrom.

Non-Statutory Obviousness-Type Double Patenting

Previous claims 1-12 stand rejected on the ground of non-statutory obviousness-type double patenting as being un-patentable over claims of the co-pending 14/152,368 application. The Examiner acknowledges that the conflicting claims are not identical, but contends that they are not patentably distinct from each other as they set forth the same salient features.

Applicant respectfully disagrees with the Examiner's assessment. However, solely to expedite prosecution, Applicant will file an appropriate Terminal Disclaimer to obviate the rejection.

Applicant requests that the Examiner reconsider and withdraw the non-statutory obviousness-type double patenting rejection.

Summary

Applicant has made a genuine effort to respond to the rejections and advance prosecution of this application. Applicant respectfully submits that all formal and substantive requirements for patentability have been met and that claims 1 and 4-19 are all in condition for allowance, which action is respectfully requested.

The Examiner is requested to telephone the undersigned to discuss resolution of any remaining issues.

No additional fee is believed be due as a result of filing this paper. However, please charge any fees or credit any overpayments as a result of the filing of this paper to Deposit Account No. 02-3978.

Respectfully submitted,
Yossi AZANCOT

By: /David S. Bir/
David S. Bir
Reg. No. 38,383
Attorney/Agent for Applicant

Date: December 30, 2014

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Electronic Acknowledgement Receipt	
EFS ID:	21084135
Application Number:	14152358
International Application Number:	
Confirmation Number:	8993
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Customer Number:	22045
Filer:	David S. Bir
Filer Authorized By:	
Attorney Docket Number:	POWM0130PUSA1
Receipt Date:	30-DEC-2014
Filing Date:	10-JAN-2014
Time Stamp:	14:17:52
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		Response.pdf	75141 192b185a1eacd7b5a9ff90885b8c5d5e23788223	yes	12

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	5
	Applicant Arguments/Remarks Made in an Amendment	6	12
Warnings:			
Information:			
	Total Files Size (in bytes):	75141	

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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.

Doc Code: DIST.E.FILE Document Description: Electronic Terminal Disclaimer - Filed	PTO/SB/25 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A PROVISIONAL DOUBLE PATENTING REJECTION OVER A PENDING "REFERENCE" APPLICATION**
Application Number	14152358
Filing Date	10-Jan-2014
First Named Inventor	Yossi AZANCOT
Attorney Docket Number	POWM0130PUSA1
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
Powermat Technologies, Ltd.	100%

The owner(s) of percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of any patent granted on pending reference Application Number(s)

14152368 filed on 01/10/2014

as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and any patent granted on the reference application are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term of any patent granted on said reference application, "as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application," in the event that any such patent granted on the pending reference application: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321, has all claims canceled by a reexamination certificate, is reissued, or is in any manner terminated prior to the expiration of its full statutory term as shortened by any terminal disclaimer filed prior to its grant.

◉ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

○	I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.

Applicant claims the following fee status:

○ Small Entity

○ Micro Entity

◉ Regular Undiscounted

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

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 is of record in this application

Registration Number 38383

○ A sole inventor

○ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application

○ A joint inventor; all of whom are signing this request

Signature	/David S. Bir/
Name	David S Bir

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	14152358
Filing Date:	10-Jan-2014
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Filer:	David S. Bir
Attorney Docket Number:	POWM0130PUSA1

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Statutory or Terminal Disclaimer	1814	1	160	160
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**160**

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 14152358

Filing Date: 10-Jan-2014

Applicant/Patent under Reexamination: AZANCOT et al.

Electronic Terminal Disclaimer filed on December 30, 2014

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt	
EFS ID:	21088398
Application Number:	14152358
International Application Number:	
Confirmation Number:	8993
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Customer Number:	22045
Filer:	David S. Bir
Filer Authorized By:	
Attorney Docket Number:	POWM0130PUSA1
Receipt Date:	30-DEC-2014
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Application Type:	Utility under 35 USC 111(a)

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Authorized User	
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Electronic Terminal Disclaimer-Filed	eTerminal-Disclaimer.pdf	34129 5f4b61071670f6e2d1ca20856e606ee5fa222948	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30595 96adba8ae563ffb311cdfb52c1b58f14b5f9ca43	no	2
Warnings:					
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		Total Files Size (in bytes):	64724		

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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)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/152,358	Filing Date 01/10/2014	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)		
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ 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)		
	12/30/2014	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	* 17	Minus	** 20	= 0	X $80 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $420 =	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)		
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ 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.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** 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.

LIE
/DENISE LILES/

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.**
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/152,358	01/10/2014	Yossi AZANCOT	POWM0130PUSA1	8993

22045 7590 09/30/2014

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SOUTHFIELD, MI 48075

EXAMINER	
FLEMING, FRITZ M	
ART UNIT	PAPER NUMBER
2836	

MAIL DATE	DELIVERY MODE
09/30/2014	PAPER

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.

Office Action Summary	Application No. 14/152,358	Applicant(s) AZANCOT ET AL.	
	Examiner FRITZ M. FLEMING	Art Unit 2836	AIA (First Inventor to File) Status No

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

Period for Reply

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

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

Status

1)☐ Responsive to communication(s) filed on _____.

☐ 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) *1-12* 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) *1-12* 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 *1/10/14* 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 *(2) 1/10/14*.

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

4) ☐ Other: _____.

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

Rejections - 35 USC § 112

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

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

2. The term "significantly" in claim 1 is a relative term which renders the claim indefinite. The term "significantly" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Applicants are directed to [0160-161] and Figure 6b, in which one sees that near linear regions (6,8) are described as “preferably”. It is also noted that the term “substantially different” and not “significantly” is used. The problem is per applicants’ own description that a small change in resonant frequency results in a large change in the induced voltage. It is difficult to ascertain exactly what would be a “significant” difference without any numerical guidance what this is supposed to be, as a seemingly significant difference may make a difference so large as to render the transfer not very effective at all. There is also some degree of uncertainty as to the "linear" aspect of the graph, as any two points can be linear, and almost the entire portion of the voltage curve above the bottom of the “delta V” (except for the top) seems to be “near linear” (applicable to claim 2). For purposes of application of art, the terminology in question is being interpreted to mean a

"significant/substantial" change is to go off of resonance. Regarding a "linear region", it is quite clear from ordinary knowledge in the art that a "higher/high Q" graph has a narrow bandwidth and thus is rather linear at the sides, so a "linear" area is also simply an area off of the resonance peak.

3. Claims 1-12 rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

4. The claims are rejected per the above description. Also please note that claim 1 reads in part "at least one primary inductive coil embedded in said platform, said primary inductive coil;" which seems to be missing something.

Claim Rejections - 35 USC § 103

5. When referring to Malpas, the first published WIPO PCT document is being referred to as it has the earliest publication date of 23 March 2006, which will qualify under 102(b) as it is more than 1 year before any claimed priority dates.

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

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

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under pre-AIA 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of pre-AIA 35 U.S.C. 103(c) and potential pre-AIA 35 U.S.C. 102(e), (f) or (g) prior art under pre-AIA 35 U.S.C. 103(a).

9. Claims 1-12 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Malpas.

10. For claim 1, Malpas clearly shows all of the claimed structure. For example, please take note of the inductive power transfer system, as shown in the drawings. A platform is seen as the floor of the Figure 6a-e coil locations, noting that the description of page 12 sets forth that the coils may be in the floor, thus a floor providing a platform

for the inductive power receiver in the animal to be supported upon. The coil being described as “in” the floor renders obvious an “embedded in the platform”, as an animal enclosure would benefit from an embedded coil structure as such would make for an easier setup to maintain, especially when it comes to cleaning up in the enclosure and any possible water or food spills from the eating or drinking or resting locations. More specifically speaking, at least one inductive power outlet comprising at least one primary inductive coil (100,46) wired to a power supply (32) via a driver (34-42) as is clearly seen in Figure 3 and as described at page 10, such that switches (40,42) intermittently connect the coil to the source to achieve the desired resonant frequency (claim 2). The characteristic resonant frequency is described at page 10 being a resonant frequency and given as 200kHz. A secondary inductive coil (i.e. 120) is inductively coupled to the primary, and is also wired to an electric load (biosensor 124, battery 126) as is clearly seen in Figure 12. The secondary inductive coil (120) is associated with an inductive power receiver being the entire inductive pickup and biosensor. As has been described in conjunction with Figure 3, the driver operates at the resonant frequency of the inductively coupled system, namely 200kHz, as per page 16, the pick-up is at the same natural resonant frequency and at a high Q. Page 16 describes how the magnetic field frequency of oscillation can be changed by moving the frequency toward or away from the natural resonant frequency, and thereby provide more or less power to be transferred to the pick-up. Thus it is obvious to one having ordinary skill in the art reading the disclosure of Malpas that by moving the frequency of oscillation to control the power transferred to the inductive pick up that the primary inductive coil is being

driven at a frequency significantly or substantially different from the resonant frequency of the system. This is known because the system is operated at a high Q and thus moving the driven frequency away from the resonant frequency controls the amount power transferred to the inductive load. This is seen, for example, at the discussion of the pages 18-19 which shows how the frequency is lowered at the perimeter in order to reduce the power supplied to the pick-up to remain at the center normalized 13mW. For claims 4 and 5, when taking the disclosure as a whole, this frequency control in conjunction with feedback of Figure 8 and the disclosed pick-up transmitter (112) and receiver, as well as the feedback control of page 13, the controller and power supply control (114-116) certainly tells one of ordinary skill in the art that the drive frequency of the primary coil is changed from the resonant frequency to adjust the transmitted power, thus requiring that the transmission frequency be increased and decreased accordingly. Since the feedback information is processed at the driver receiver and controller (114,115), it is obvious that the load be abler to tell the controller which way to adjust the frequency. The description of Figure 12 describes how the power flow controller senses the power required by the biosensor as well as the power available at the pick-up, so that the total power demand and power available can be sent back via the transceiver for appropriate feedback control of the frequency. Since the biosensor unit is capable of determining if more or less power is needed, and such is transmitted to the primary coil driver via the receiver (114) at the driver (hence the claimed signal detector) and there obviously must exist an adapted detection ability to discern between a first signal for frequency increase and a second signal for frequency decrease at the

receiver, as the disclosure as a whole describes how the frequency is changed off of the resonant frequency to control the power. Basic engineering skill dictates a basic knowledge of feedback control, and Malpas has outlined at a system level how to do this, and thus to provide a feedback control system based upon a simplistic frequency up/down command from the secondary to primary is an obvious implementation consistent with ordinary skill in the art. For claim 3, as discussed above, a high-Q system has a rather narrow shape and thus any off resonant frequency that still allows for power control will be in the linear range. For claims 6 and 7, page 17 describes how the power needed by and provided to the load are processed to determine if more or less power, and thus the direction of frequency adjustment, is needed. For claim 8, a radio receiver is mentioned for feedback control. For claim 9, please note the voltage and phase detection (52) of the primary coil, as feedforward control id also mentioned at page 13 which discusses the monitoring of the power delivered to the primary coil. For claim 10, note that frequency sweeps to detect resonance are mentioned at page 16, as well as the detection of metal objects at page 19 requires the ability to detect significant increases. For claim 11, a full bridge rectifier is suggested at page 17. For claim 12, an implanted device is described.

Double Patenting

11. 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.

12. Claims 1-12 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-20 of copending Application No. 14/152,368. Although the claims at issue are not identical, they are not patentably distinct from each other because the copending claims set forth the same salient technical features wherein the instant claims 1 and 4 are found in co-pending claim 1. Claim 2 is obvious due to the co-pending claim driver as the primary coil would not be continuously energized because a resonant frequency that is adjusted by feedback requires intermittent power connectivity. Claim 12 sets forth obvious uses for inductive power transfer that is well known, given the amount of art made of record by applicants. The other dependent claims correlate to each other upon inspection. This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

13. Note that applicants have similar patented claims in 8,427,012 and 8,188,619 and the claims are directed to transmission of control signals, and thus not subject to double patenting, subject to re-evaluation as prosecution progresses.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Schuermann is evidence of the well-known uplink FSK modulation based upon opening and closing a switch (70) to make for “1” and “0” based upon altered Q resonant frequencies (72 changes resonance). Loeffler shows that it is known to operate off resonance due to component tolerances as described at column 4 and Figure 3.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRITZ M. FLEMING whose telephone number is (571)272-4145. The examiner can normally be reached on M-F, 0900-1730.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jared Fureman can be reached on 571-272-2391. 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.

FRITZ M FLEMING
Primary Examiner
Art Unit 2836

/FRITZ M FLEMING/
Primary Examiner, Art Unit 2836

Notice of References Cited	Application/Control No. 14/152,358	Applicant(s)/Patent Under Reexamination AZANCOT ET AL.	
	Examiner FRITZ M. FLEMING	Art Unit 2836	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2014/0125147	05-2014	AZANCOT et al.	307/104
*	B	US-2014/0125146	05-2014	AZANCOT et al.	307/104
*	C	US-2007/0296393	12-2007	Malpas et al.	323/355
*	D	US-5,838,074	11-1998	Loeffler et al.	340/5.61
*	E	US-8,188,619	05-2012	Azancot et al.	307/104
*	F	US-8,427,012	04-2013	Azancot et al.	307/104
*	G	US-5,374,930	12-1994	Schuermann, Josef H.	342/42
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
*	N	WO 2006031133 A1	03-2006	World Intellect	MALPAS et al.	
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*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.

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	
	Filing Date	
	First Named Inventor	Yossi Azancot
	Art Unit	
	Examiner Name	
	Attorney Docket Number	POWM0130PUSA1

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	3771085		1973-11-06	HOJO et al.	
	2	3938018		1976-02-10	DAHL	
	3	4160193		1979-07-03	RICHMOND	
	4	4431948		1984-02-14	ELDER et al.	
	5	4754180		1988-06-28	KIEDROWSKI	
	6	4977515		1990-12-11	RUDDEN et al.	
	7	5221877		1993-06-22	FALK	
	8	5278771		1994-01-11	NYENYA	

 ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /F.F./

Receipt date: 01/10/2014	Application Number	14152358 - GAU: 2836
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**	Filing Date	
	First Named Inventor	Yossi Azancot
	Art Unit	
	Examiner Name	
	Attorney Docket Number	POWM0130PUSA1

	9	5367242		1994-11-22	HULMAN	
	10	5455466		1995-10-03	PARKS et al.	
	11	5486394		1996-01-23	STOUGH	
	12	5528113		1996-06-18	BOYS et al.	
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	14	5600225		1997-02-04	GOTO	
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☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

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Signature	/David S. Bir/	Date (YYYY-MM-DD)	2014-01-10
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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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /F.F./

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14152358	AZANCOT ET AL.
	Examiner	Art Unit
	FRITZ M FLEMING	2836

CPC- SEARCHED		
Symbol	Date	Examiner
H02J17/00	9/29/2014	FMF

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
307	104	9/29/2014	FMF
320	108	9/29/2014	FMF

SEARCH NOTES		
Search Notes	Date	Examiner
EAST, reviewed related applications and patents.	9/29/2014	FMF

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/FRITZ M FLEMING/ Primary Examiner.Art Unit 2836

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	
	First Named Inventor	YOSSI AZANCOT
	Art Unit	
	Examiner Name	
	Attorney Docket Number	POWM0130PUSA1

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	4349814		1982-09-14	AKEHURST	
	2	3414796		1968-12-03	HENQUET	
	3	8049370		2011-11-01	AZANCOT	
	4	5455467		1995-10-03	YOUNG	
	5	4580062		1986-04-01	MACLAUGHLIN	
	6	7278310		2007-10-09	RICE	
	7	RE31524		1984-02-21	HOEBEL	
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Receipt date: 01/10/2014	Application Number	14152358 - GAU: 2836
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Filing Date	
(Not for submission under 37 CFR 1.99)	First Named Inventor	YOSSI AZANCOT
	Art Unit	
	Examiner Name	
	Attorney Docket Number	POWM0130PUSA1

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20050189910	A1	2005-09-01	HUI	
	2	20070103110	A1	2007-05-10	SAGOO	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] ¡	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2005041281	WO	A1	2005-05-06	NORTHROP GRUMMAN CORPORATION		☐
	2	2001-309579	JP		2001-11-02	MATSUSHITA ELECTRIC WORKS LTD		☐
	3	2007-529110	JP		2007-10-18	THALES UK PLC		☐
	4	07-039078	JP		1995-02-07	TOSHIBA CORP		☐
	5	2005-006440	JP		2005-01-06	SEIKO EPSON CORP		☐
	6	2005-110412	JP		2005-04-21	SHARP CORP		☐

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Receipt date: 01/10/2014	Application Number	14152358 - GAU: 2836
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**	Filing Date	
	First Named Inventor	YOSSI AZANCOT
	Art Unit	
	Examiner Name	
	Attorney Docket Number	POWM0130PUSA1

	7	04-156242	JP		1992-05-28	SEKISUI CHEM CO LTD		☐
	8	2006-102055	JP		2006-04-20	CLEANUP CORP		☐
	9	07-036556	JP			UNKNOWN		☐
	10	2001309579	JP		2001-11-02	MATSUSHITA ELECTRIC WORKS LTD		☐
	11	2006037972	WO	A1	2005-09-30	GALLAGHER		☐

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NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Office Action dated March 22, 2013, for Mexican Application MX/a/2011/003088	☐
	2	Office Action dated February 5, 2013, for Chinese Application 201110068458.7	☐
	3	Office Action dated May 28, 2013, for Japanese Application 2010-526422	☐
	4	Office Action dated May 28, 2013, for Japanese Application 2010-528526	☐

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Receipt date: 01/10/2014	Application Number	14152358 - GAU: 2836
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**	Filing Date	
	First Named Inventor	YOSSI AZANCOT
	Art Unit	
	Examiner Name	
	Attorney Docket Number	POWM0130PUSA1

	5	Office Action dated May 21, 2013, for Japanese Application 2011-500345	☐

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EXAMINER SIGNATURE

Examiner Signature	/Fritz Fleming/ (09/27/2014)	Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /F.F./

Receipt date: 01/10/2014	Application Number	14152358 - GAU: 2836
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**	Filing Date	
	First Named Inventor	YOSSI AZANCOT
	Art Unit	
	Examiner Name	
	Attorney Docket Number	POWM0130PUSA1

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/David S. Bir/	Date (YYYY-MM-DD)	2014-01-10
Name/Print	David S. Bir	Registration Number	38383

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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

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 record s.

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.

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /F.F./

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	207	frequency same controller same up same down same inputs	USPAT	OR	OFF	2014/09/27 11:50
L2	2	"frequency controller" same inputs same increase same decrease	USPAT	OR	OFF	2014/09/27 11:57
L3	2	("7675339" | "8310286").PN. OR ("8570080").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2014/09/27 11:58
L4	12	"frequency controller" and (inputs same increase same decrease)	USPAT	OR	OFF	2014/09/27 11:59
L5	18	"frequency controller" and (inputs same increase same decrease)	US-PGPUB	OR	OFF	2014/09/27 12:01
L6	43	"frequency controller" and (inputs same up same down)	US-PGPUB	OR	OFF	2014/09/27 12:02
L7	71	"frequency controller" and (inputs same up same down)	USPAT	OR	OFF	2014/09/27 12:04
L8	234	"frequency generator" and (inputs same up same down)	USPAT	OR	OFF	2014/09/27 12:09
L9	0	"frequency generator" and (inputs same up same down)	EPO	OR	OFF	2014/09/27 12:10
L10	1	"frequency generator" and (inputs same up same down)	JPO	OR	OFF	2014/09/27 12:10
L11	11	"frequency generator" and (inputs same up same down)	DERWENT	OR	OFF	2014/09/27 12:10
L12	234	"frequency generator" and (inputs same up same down)	USPAT	OR	OFF	2014/09/27 12:11
L13	22	("4042891" | "4115744" | "4387347" | "4463321" | "5204640" | "5570054" | "5687261" | "5696951" | "5949290" | "6329648" | "6373740" | "6433596" | "6525618" | "6556089" | "6593821" | "6622370" | "6741109" | "6816020" | "7085336" | "7119591" | "RE27092").PN. OR ("7215208").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2014/09/27 12:34
L14	1202	"clock generator" and (inputs same up same down)	USPAT	OR	OFF	2014/09/27 12:35
L15	149	"clock generator" same (inputs same up same down)	USPAT	OR	OFF	2014/09/27 12:35
L16	141	"programmable frequency generator"	USPAT	OR	OFF	2014/09/27 12:39
L17	199	"frequency sweep" same up same down	USPAT	OR	OFF	2014/09/27 12:46
L18	2922	(307/104).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/09/27 12:55
L19	2922	L18	US-	OR	OFF	2014/09/27

			PGPUB; USPAT			12:55
L20	2128	L18 and (frequency sam up same down)	US-PGPUB; USPAT	OR	OFF	2014/09/27 12:55
L21	94	L18 and (frequency same up same down)	US-PGPUB; USPAT	OR	OFF	2014/09/27 12:55
L22	5344	h02j17/00.cpc.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT	OR	ON	2014/09/27 13:16
L23	34	L22 and (frequency same up same down)	US-PGPUB; USPAT	OR	OFF	2014/09/27 13:16
L24	34	L22 and (frequency same sweep)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:20
L25	97	18 and (frequency same sweep)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:22
L26	1938	18 and (frequency same power)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:27
L27	1985	18 and (frequency same power samew adjust)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:27
L28	590	18 and (frequency same power same adjust)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:27
L29	732	18 and (frequency near3 adjust$)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:28
L30	477	18 and (frequency same increase same decrease)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:32
L31	174	18 and (frequency near5 increase near5 decrease)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:33
L32	985	18 and (frequency same power same efficiency)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:33
L33	332	(wireless$ or noncontact$ or inductive$ or contactless$) and power and transfer and (frequency and power and efficiency)	EPO; JPO; DERWENT	OR	ON	2014/09/27 13:43
L34	82998	(wireless$ or noncontact$ or inductive$ or contactless$) and power and transfer and (frequency and power and efficiency)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:58
L35	1136	(wireless$ or noncontact$ or inductive$ or contactless$) same power same transfer same (frequency same power same efficiency)	US-PGPUB; USPAT	OR	ON	2014/09/27 13:58
L36	5295	307/104.ccls. or 320/108.ccls. or h02j17/00.cpc.	US-PGPUB; USPAT	OR	ON	2014/09/27 14:49

L37	595	36 and (frequency same feedback)	US-PGPUB; USPAT	OR	ON	2014/09/27 14:50
L40	2	powermat and dru	USPAT	OR	OFF	2014/09/27 15:30
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S2	1	("20140125146").PN.	US-PGPUB; USPAT	OR	OFF	2014/09/26 15:24
S3	1	S2 and significantly	US-PGPUB; USPAT	OR	OFF	2014/09/26 15:25
S4	2	(("20140125146") or ("20140125147")).PN.	US-PGPUB; USPAT	OR	OFF	2014/09/26 15:32
S5	2922	(307/104).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/09/26 15:36
S6	1	S5 and young and apple and fleming	USPAT	OR	OFF	2014/09/26 15:37
S7	174	S5 and (nonresonant or (non adj resonant))	US-PGPUB; USPAT	OR	ON	2014/09/26 15:39
S8	133	h02j17/00.cpc. and (nonresonant or (non adj resonant))	US-PGPUB; USPAT	OR	ON	2014/09/26 15:44
S9	125	(wireless adj power adj transfer) and (nonresonant or (non adj resonant))	US-PGPUB; USPAT	OR	ON	2014/09/26 15:45
S10	1	(wireless adj power adj transfer) and (nonresonant or (non adj resonant))	EPO; JPO; DERWENT	OR	ON	2014/09/26 15:46
S11	1	contactless$ and (nonresonant or (non adj resonant))	EPO; JPO; DERWENT	OR	ON	2014/09/26 15:47
S12	852	(nonresonant or (non adj resonant))	EPO; JPO; DERWENT	OR	ON	2014/09/26 15:47
S13	8	(nonresonant or (non adj resonant)) same transfer	EPO; JPO; DERWENT	OR	ON	2014/09/26 15:47
S14	0	(nonresonant or (non adj resonant)) same contactless	FPRS	OR	ON	2014/09/26 15:50
S15	17	(nonresonant or (non adj resonant)) same contactless	US-PGPUB; USPAT	OR	ON	2014/09/26 15:50
S16	294	S5 and detun$	US-PGPUB; USPAT	OR	ON	2014/09/26 15:56
S17	1926	(320/108).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/09/26 16:00
S18	36	S17 and (non adj1 (resonant or resonance or resonating))	US-PGPUB; USPAT	OR	ON	2014/09/26 16:01
S19	2	(inductive adj power) and (non adj1 (resonant or resonance or resonating))	FPRS; EPO; JPO; DERWENT	OR	ON	2014/09/26 16:09
S20	10	(inductive adj power) and resonance and	FPRS;	OR	ON	2014/09/26

		peak	EPO; JPO; DERWENT			16:10
S21	693	(inductive adj power) and resonance and peak	US-PGPUB; USPAT	OR	ON	2014/09/26 16:11
S22	91	(inductive adj power) and (resonance same peak)	US-PGPUB; USPAT	OR	ON	2014/09/26 16:11
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			USPAT; FPRS; EPO; JPO; DERWENT			
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S41	538	(inductive or wireless or noncontact or contactless) same (power or energy) same transfer same frequency	EPO; JPO; DERWENT	OR	ON	2014/09/26 23:24

EAST Search History (Interference)

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9/ 27/ 2014 3:46:37 PM
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14152358	AZANCOT ET AL.
	Examiner	**Art Unit**
	FRITZ M FLEMING	2836

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

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

CLAIM		DATE								
Final	Original	09/29/2014								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
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	8	✓								
	9	✓								
	10	✓								
	11	✓								
	12	✓								

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Yossi AZANCOT

Group Art Unit: 2836

Examiner: Fritz M. Fleming

Serial No.: 14/152,358

Filed: 1/10/2014

For: TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Attorney Docket No.: POWM 0130 PUSA1

NOTIFICATION OF WITHDRAWAL OF CLAIM OF SMALL ENTITY STATUS AND ERROR IN PAYMENT OF FEE(S) AS A SMALL ENTITY (37 C.F.R. § 1.28(c))

Commissioner for Patents
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

It appears that small entity status was established in error for the above-identified patent application. Therefore, the assignee of the patent application hereby withdraws the claim of entitlement to small entity status.

Presented below is an itemization of the deficiency payment owed for this application:

Type of Payment Made	Fee Code	Fee Paid	Payment Date	Fee Required	Deficiency Amt. Owed
Late filing, search, exam, oath or declaration, or application filed with missing parts fee.	2051	$70.00	1/13/2014	$140.00	$70.00
Basic filing fee - Utility	4011	$70.00	1/13/2014	$280.00	$210.00
Utility Search fee	2111	$300.00	1/13/2014	$600.00	$300.00
Utility Examination Fee	2311	$360.00	1/13/2014	$720.00	$360.00
Processing fee	2830	$70.00	3/7/2014	$140.00	$70.00

Please charge our Deposit Account No. 02-3978 for the sum of $1,010.00 based on the deficiency between the amount of fees paid and the amount owed.

The Commissioner is also hereby authorized to charge any additional fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

Respectfully submitted,

Yossi AZANCOT

By: /David S. Bir/
David S. Bir
Reg. No. 38,383
Attorney for Applicant

Date: September 5, 2014

BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351

Electronic Acknowledgement Receipt

EFS ID:	20068373
Application Number:	14152358
International Application Number:	
Confirmation Number:	8993
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Customer Number:	22045
Filer:	David S. Bir/Pamela Demos
Filer Authorized By:	David S. Bir
Attorney Docket Number:	POWM0130PUSA1
Receipt Date:	08-SEP-2014
Filing Date:	10-JAN-2014
Time Stamp:	12:00:27
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	Notification of loss of entitlement to small entity status	Withdrawal_of_claim_of_small_entity.pdf	154760 24e589cb85a83c64a7a6e35d2e7353602df7e2f3	no	2
Warnings:					
Information:					

Total Files Size (in bytes):	154760

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.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/152,358	01/10/2014	Yossi AZANCOT	POWM0130PUSA1

CONFIRMATION NO. 8993

22045
BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075

PUBLICATION NOTICE



Title:TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Publication No.US-2014-0125146-A1
Publication Date:05/08/2014

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/152,358	01/10/2014	2836	800	POWM0130PUSA1	12	1

CONFIRMATION NO. 8993

CORRECTED FILING RECEIPT

22045
BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075



Date Mailed: 04/01/2014

Receipt is acknowledged of this non-provisional 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 APPLICANT, 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 Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections 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**

Inventor(s)

Yossi AZANCOT, Jerusalem, ISRAEL;
Amir BEN-SHALOM, Modiin, ISRAEL;
Oola GREENWALD, Mevasseret Zion, ISRAEL;
Arik ROFE, Jerusalem, ISRAEL;
Alfred LEI-BOVITZ, Petach Tikva, ISRAEL;
Moti Ashery, Jerusalem, ISRAEL;

Applicant(s)

POWERMAT TECHNOLOGIES, LTD., NEVE ILAN, ISRAEL

Assignment For Published Patent Application

POWERMAT TECHNOLOGIES, LTD., NEVE ILAN, ISRAEL

Power of Attorney: The patent practitioners associated with Customer Number 22045

Domestic Priority data as claimed by applicant

This application is a DIV of 12/883,457 09/16/2010
which is a CON of PCT/IL2008/001641 12/18/2008
which claims benefit of 61/064,618 03/17/2008
and claims benefit of 61/071,151 04/15/2008
and claims benefit of 61/129,526 07/02/2008
and claims benefit of 61/129,859 07/24/2008
and claims benefit of 61/129,970 08/04/2008

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 - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 01/24/2014
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/152,358**
Projected Publication Date: 05/08/2014
Non-Publication Request: No
Early Publication Request: No
**** SMALL ENTITY ****
Title

TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Preliminary Class

307

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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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.

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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

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

YOSSI AZANCOT

Group Art Unit: 2844

Examiner: Unknown

Serial No.: 14/152358

Filed: 1/10/2014

For: TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Attorney Docket No.: POWM0130PUSA1

REQUEST FOR CORRECTED FILING RECEIPT

Office of Initial Patent Examination
Commissioner for Patents
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

Applicant respectfully requests issuance of a Corrected Filing Receipt for the above-identified application. Upon Applicant's review of the Official Filing Receipt, an error has been discovered with respect to the following data:

Please delete the following inventors:
~~Dov RHODES and Noam MEYUHAS~~.

Please add the following inventor:
Moti ASHERY, Jerusalem, ISRAEL

A copy of the Official Filing Receipt with the changes noted thereon is enclosed, as well as a copy of the Corrected Application Data Sheet with the changes noted thereon.

If there are any questions concerning this communication, please feel free to contact the undersigned.

Respectfully submitted,

YOSSI AZANCOT

By: /David S. Bir/
David S. Bir
Reg. No. 38,383
Attorney/Agent for Applicant

Date: March 24, 2014

BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
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CORRECTED FILING RECEIPT

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/152,358	01/10/2014	2844	800	POWM0130PUSA1	12	1

CONFIRMATION NO. 8993

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SOUTHFIELD, MI 48075

FILING RECEIPT



Date Mailed: 01/24/2014

Receipt is acknowledged of this non-provisional 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 APPLICANT, 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 Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections 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**

Inventor(s)

Yossi AZANCOT, Jerusalem, ISRAEL;
Amir BEN-SHALOM, Modiin, ISRAEL;
Oola GREENWALD, Mevasseret Zion, ISRAEL;
Arik ROFE, Jerusalem, ISRAEL;
Alfred LEI-BOVITZ, Petach Tikva, ISRAEL;
~~Dov RHODES, D.N. Misgav, ISRAEL;~~
~~Noam MEYUHAS, Jerusalem, ISRAEL~~;
Moti ASHERY, Jerusalem, ISRAEL;

Applicant(s)

POWERMAT TECHNOLOGIES, LTD., NEVE ILAN, ISRAEL

Assignment For Published Patent Application

POWERMAT TECHNOLOGIES, LTD., NEVE ILAN, ISRAEL

Power of Attorney: The patent practitioners associated with Customer Number 22045

Domestic Priority data as claimed by applicant

This application is a DIV of 12/883,457 09/16/2010
which is a CON of PCT/IL2008/001641 12/18/2008
which claims benefit of 61/064,618 03/17/2008
and claims benefit of 61/071,151 04/15/2008
and claims benefit of 61/129,526 07/02/2008
and claims benefit of 61/129,859 07/24/2008
and claims benefit of 61/129,970 08/04/2008

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 - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 01/24/2014

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/152,358**

Projected Publication Date: 05/08/2014

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Preliminary Class

315

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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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.

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

CORRECTED APPLICATION DATA SHEET

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

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
	Yossi		AZANCOT	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Jerusalem	Country of Residence i	IL

Mailing Address of Inventor:

Address 1	13/4 Hatkufah		
Address 2			
City	Jerusalem	**State/Province**	OT
Postal Code	92628	**Country** i	IL

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Amir		BEN-SHALOM	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Modiin	Country of Residence i	IL

Mailing Address of Inventor:

Address 1	8 Mentor Street		
Address 2			
City	Modiin	**State/Province**	OT
Postal Code	71706	**Country** i	IL

Inventor 3 Remove

Legal Name

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

Prefix	Given Name	Middle Name	Family Name	Suffix
	Oola		GREENWALD	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Mevasseret Zion	Country of Residence	IL

Mailing Address of Inventor:

Address 1	107 HaShalom Street		
Address 2			
City	Mevasseret Zion	State/Province	OT
Postal Code	90805	Country	IL

Inventor 4 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Arik		ROFE	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Jerusalem	Country of Residence	IL

Mailing Address of Inventor:

Address 1	8 Hameyasdim Street		
Address 2			
City	Jerusalem	State/Province	OT
Postal Code	96224	Country	IL

Inventor 5 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Alfred		LEI-BOVITZ	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Petach Tikva	Country of Residence	IL

Mailing Address of Inventor:

Address 1	46 Ha'atzmaut Street		
Address 2			
City	Petach Tikva	State/Province	OT
Postal Code	49379	Country	IL

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

Inventor 6 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	~~Dov~~ Moti		~~RHODES~~ ASHERY	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	~~D.N. Misgav~~ Jerusalem	Country of Residence i	IL

Mailing Address of Inventor:

Address 1	~~Moshav Shorashim~~ 13 Hamaapilim St.		
Address 2			
City	~~D.N. Misgav~~ Jerusalem	State/Province	OT
Postal Code	~~20164~~ 92545	Country i	IL

~~**Inventor 7**~~ Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	~~Noam~~		~~MEYUHAS~~	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	~~Jerusalem~~	Country of Residence i	~~IL~~

Mailing Address of Inventor:

Address 1	~~56 A'Tshernechovski Street~~		
Address 2			
City	~~Jerusalem~~	State/Province	~~OT~~
Postal Code	~~92585~~	Country i	~~IL~~

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	22045		
Email Address		Add Email	Remove Email

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

Application Information:

Title of the Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY		
Attorney Docket Number	POWM0130PUSA1	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	19	**Suggested Figure for Publication (if any)**	1

Filing By Reference

Only compete 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 i

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	22045		

Additional Representative Information blocks may be generated within this form by selecting the **Add** button.

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Division of	12883457	2010-09-16
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12883457	Continuation of	PCTIL2008001641	2008-12-18
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCTIL2008001641	Claims benefit of provisional	61064618	2008-03-17
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCTIL2008001641	Claims benefit of provisional	61071151	2008-04-15
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCTIL2008001641	Claims benefit of provisional	61129526	2008-07-02
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCTIL2008001641	Claims benefit of provisional	61129859	2008-07-24
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCTIL2008001641	Claims benefit of provisional	61129970	2008-08-04

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(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(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	Filing Date (YYYY-MM-DD)	Access Code (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

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

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 of 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

◉ 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	

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

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	POWERMAT TECHNOLOGIES, LTD.		
Mailing Address Information:			
Address 1	Kiryat Hatikshoret		
Address 2			
City	NEVE ILAN	**State/Province**	OT
Country i IL		Postal Code	90850
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 subsitute 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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

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 form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications

Signature	/David S. Bir/				
First Name	David	Last Name	Bir	Registration Number	38383

Additional Signature may be generated within this form by selecting the Add button.

Electronic Acknowledgement Receipt

EFS ID:	18562005
Application Number:	14152358
International Application Number:	
Confirmation Number:	8993
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Customer Number:	22045
Filer:	David S. Bir/Theresa Good
Filer Authorized By:	David S. Bir
Attorney Docket Number:	POWM0130PUSA1
Receipt Date:	24-MAR-2014
Filing Date:	10-JAN-2014
Time Stamp:	14:34:39
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	Request for Corrected Filing Receipt	RequestForCorrectedFilingReceipt.pdf	139617 be78e8b801ba84d68cb5d2374e9435b7d4873aac	no	2
Warnings:					
Information:					

2	Request for Corrected Filing Receipt	MarkedUpFilingReceipt.pdf	193556 b6159a28f228de05e6bb745770dca60ec4d0b37a	no	4
Warnings:					
Information:					
3	Application Data Sheet	MarkedUpADS.pdf	196667 cd680c54b36a563d4ae9da6b401167b2192aa3fa	no	8
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
			Total Files Size (in bytes):	529840	

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.

<u>New Applications Under 35 U.S.C. 111</u>
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.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
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.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
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
14/152,358	01/10/2014	Yossi AZANCOT	POWM0130PUSA1

CONFIRMATION NO. 8993

22045
BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075

IMPROPER CFR REQUEST



Date Mailed: 03/11/2014

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Power of Attorney, Claims, Fees, System Limitations, and Miscellaneous

In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

- The request to correct inventorship under 37 CFR 1.48(a) is deficient because a corrected or updated application data sheet (ADS) (or a supplemental ADS for applications filed before 9/16/12) in compliance with 37 CFR 1.76 (including markings showing the changes) has not been submitted. Any renewed request must include a corrected or updated ADS (or supplemental ADS for applications filed before 9/16/12) in compliance with 37 CFR 1.76 that identifies the information being changed, with underlining for insertions, and strike-through or brackets for text removed.

/ybedada/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

YOSSI AZANCOT

Group Art Unit: 2844

Examiner:

Serial No.: 14/152358

Filed: 1/10/2014

For: TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Attorney Docket No.: POWM0130PUSA1

REQUEST TO CORRECT INVENTORSHIP UNDER 37 C.F.R. § 1.48

Commissioner for Patents
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

The listing of inventors set forth in the Application Data Sheet for Application 14/152,358, filed January 10, 2014, is in error because two inventors should be omitted, and one inventor should be added. The error arose without any deceptive intention on the part of the persons who were erroneously named as inventors; and further, no deceptive intention was on the part of the person who was not named as inventor. To correct the error, please delete the following inventors:

~~Dov RHODES and Noam MEYUHAS~~.

And, also, to correct the error, please add the following inventor:

Moti ASHERY, Jerusalem, ISRAEL

An executed Assignment/Declaration which lists the correct inventors and Supplemental Corrected Application Data Sheet are being filed concurrently herewith. The processing fee in the amount of $130 is submitted electronically herewith. Please charge any additional fees or credit any overpayments to Deposit Account 02-3978.

If there are any questions concerning this communication, please feel free to contact the undersigned.

Respectfully submitted,

YOSSI AZANCOT

By: /David S. Bir/
David S. Bir
Reg. No. 38,383
Attorney/Agent for Applicant

Date: February 27, 2014

BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351

Electronic Patent Application Fee Transmittal

Application Number:	14152358
Filing Date:	10-Jan-2014
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Filer:	David S. Bir/Theresa Good
Attorney Docket Number:	POWM0130PUSA1

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

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:				
Processing Fee Correcting Inventorship	1816	1	130	130
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**130**

Electronic Acknowledgement Receipt	
EFS ID:	18323352
Application Number:	14152358
International Application Number:	
Confirmation Number:	8993
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Customer Number:	22045
Filer:	David S. Bir
Filer Authorized By:	
Attorney Docket Number:	POWM0130PUSA1
Receipt Date:	27-FEB-2014
Filing Date:	10-JAN-2014
Time Stamp:	16:55:58
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$130
RAM confirmation Number	4166
Deposit Account	023978
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	ExecutedAssignmentDeclaration.pdf	284215 c4cb9ea98ad9bbce922eeaabf726ec5084ea9fba	no	4
Warnings:					
Information:					
2	Application Data Sheet	SupplementalADS.pdf	138998 098258e11efee476eff0d001340e9e59a9e6ff1a	no	2
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
3	Request under Rule 48 correcting inventorship	RequestToCorrectInventorship.pdf	142373 255ff5c935cba8f26bfb5ec72d7494607a708bbb	no	2
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30358 3b015971acdef95b40a3a7a1014b63db0947f87e	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	595944		

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.

<u>New Applications Under 35 U.S.C. 111</u>
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.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
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.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
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.

Attorney Docket Number	POWM0130PUSA1 US2C

ASSIGNMENT AND DECLARATION (37 C.F.R. 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)

Title of Invention	**TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY**

As a below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 14/152,358 filed on 1/10/2014. (I hereby authorize the insertion of the application filing date and number when they become known.)

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 state that I have reviewed and understand the contents of the above-identified specification, including the claims.

I am aware of the duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, I do hereby assign, sell and set over to POWERMAT TECHNOLOGIES, LTD., a corporation organized and existing under the laws of the country of ISRAEL, and having a place of business at Kiryat Hatikshoret, NEVE ILAN, 90850 ISRAEL, hereinafter referred to as the ASSIGNEE, its successors, assigns or other legal representatives, my entire right, title and interest, domestic and foreign, in and to the inventions and discoveries in the above-identified application including the right of said ASSIGNEE, its successors, assigns or other legal representatives to make applications and to receive Letters Patent for said inventions and discoveries in any and all foreign countries in its or their own name or names, or in my name, at its or their election, and I hereby assign, sell and set over to said ASSIGNEE, its successors, assigns or other legal representatives, all rights of priority, including any provisional applications, in and to said inventions and discoveries in all countries, including all applications claiming benefit of the filing date hereof, continuations, continuations-in-part, divisionals, reexaminations and reissue applications.

And I hereby agree for myself, my heirs, successors, assigns or other legal representatives to execute any and all papers, including applications for Letters Patent of any and all kinds and in any and all countries and to perform any and all acts which said ASSIGNEE, its successors, assigns or other legal representatives may deem necessary to secure thereto the rights herein assigned, sold and set over.

And I hereby represent and warrant that I have not granted any rights inconsistent with the rights granted herein.

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.

LEGAL NAME OF INVENTOR

Inventor: YOSSI AZANCOT Date: 4 FEB 14

Signature: _____

Page 1 (Supplemental Sheet with Additional Joint Inventors is attached if necessary)

Note: An Application Data Sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form.

Attorney Docket Number	POWM0130PUSA1 US2C

SUPPLEMENTAL SHEET FOR ASSIGNMENT AND DECLARATION (37 C.F.R. 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)	Additional Inventors Page 2

Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Legal Name of Additional Joint Inventor:

Inventor: AMIR BEN-SHALOM Date:

Signature:

Legal Name of Additional Joint Inventor:

Inventor: OOLA GREENWALD Date: 16/2/2014

Signature:

Legal Name of Additional Joint Inventor:

Inventor: ARIK ROFE Date: 16 February 2014

Signature:

Legal Name of Additional Joint Inventor:

Inventor: ALFRED LEI-BOVITZ Date:

Signature:

Legal Name of Additional Joint Inventor:

Inventor: MOTI ASHERY Date: 16/2/2014

Signature:

Attorney Docket Number	POWM0130PUSA1 US2C

SUPPLEMENTAL SHEET FOR ASSIGNMENT AND DECLARATION (37 C.F.R. 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)	Additional Inventors Page 2

Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Legal Name of Additional Joint Inventor:

Inventor: AMIRBEN-SHALOM Date: 15 FEB 2014

Signature: A B

Legal Name of Additional Joint Inventor:

Inventor: OOLAGREENWALD Date:

Signature:

Legal Name of Additional Joint Inventor:

Inventor: ARIKROFE Date:

Signature:

Legal Name of Additional Joint Inventor:

Inventor: ALFREDLEI-BOVITZ Date:

Signature:

Legal Name of Additional Joint Inventor:

Inventor: MOTIASHERY Date:

Signature:

Attorney Docket Number	POWM0130PUSA1 US2C

SUPPLEMENTAL SHEET FOR ASSIGNMENT AND DECLARATION (37 C.F.R. 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)	Additional Inventors Page 2

Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Legal Name of Additional Joint Inventor:

Inventor: AMIR BEN-SHALOM Date:

Signature:

Legal Name of Additional Joint Inventor:

Inventor: OOLA GREENWALD Date:

Signature:

Legal Name of Additional Joint Inventor:

Inventor: ARIK ROFE Date:

Signature:

Legal Name of Additional Joint Inventor:

Inventor: ALFRED LEI-BOVITZ Date: 26. Feb. 2014

Signature:

Legal Name of Additional Joint Inventor:

Inventor: MOTI ASHERY Date:

Signature:

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: YOSSI AZANCOT

Serial No.: 14/152358

Filed: 1/10/2014

For: TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Attorney Docket No.: POWM0130PUSA1

SUPPLEMENTAL APPLICATION DATA SHEET

Commissioner for Patents
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

Kindly amend the Inventor Information section as follows:

Please delete Inventors 6 and 7, including all address information, for ~~Dov RHODES and Noam MEYUHAS~~.

Please insert new Inventor 6 as follows:

Given Name: Moti Family Name: ASHERY

City: Jerusalem Country: ISRAEL

Address 1: 13 Hamaapilim St.

City: Jerusalem Postal Code: 92545 Country: ISRAEL

The Commissioner is hereby authorized to charge any fees or credit any overpayments as a result of the filing of this paper to Deposit Account No. 02-3978.

Respectfully submitted,

YOSSI AZANCOT

By: /David S. Bir/
David S. Bir
Reg. No. 38,383
Attorney/Agent for Applicant

Date: February 27, 2014

BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351

Document code: WFEE

United States Patent and Trademark Office
Sales Receipt for Accounting Date: 03/07/2014

VVAN11 SALE #00000048 Mailroom Dt: 02/27/2014 023978 14152358
01 FC : 2830 70.00 DA

Document code: WFEE

United States Patent and Trademark Office
Sales Receipt for Accounting Date: 03/07/2014

VVAN11 ADJ #00000011 Mailroom Dt: 02/27/2014
Seq No: 4166 Sales Acctg Dt: 02/28/2014 023978 14152358
01 FC : 1816 130.00 CR

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 14/152,358

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	12 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	*	x 210 =	0.00			
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).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	730		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** 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 found in the appropriate box in column 1.

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
14/152,358	01/10/2014	2844	800	POWM0130PUSA1	12	1

CONFIRMATION NO. 8993

22045
BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075

FILING RECEIPT

OC000000066242640

Date Mailed: 01/24/2014

Receipt is acknowledged of this non-provisional 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 APPLICANT, 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 Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections 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**

Inventor(s)

Yossi AZANCOT, Jerusalem, ISRAEL;
Amir BEN-SHALOM, Modiin, ISRAEL;
Oola GREENWALD, Mevasseret Zion, ISRAEL;
Arik ROFE, Jerusalem, ISRAEL;
Alfred LEI-BOVITZ, Petach Tikva, ISRAEL;
Dov RHODES, D.N. Misgav, ISRAEL;
Noam MEYUHAS, Jerusalem, ISRAEL;

Applicant(s)

POWERMAT TECHNOLOGIES, LTD., NEVE ILAN, ISRAEL

Assignment For Published Patent Application

POWERMAT TECHNOLOGIES, LTD., NEVE ILAN, ISRAEL

Power of Attorney: The patent practitioners associated with Customer Number 22045

Domestic Priority data as claimed by applicant

This application is a DIV of 12/883,457 09/16/2010
which is a CON of PCT/IL2008/001641 12/18/2008
which claims benefit of 61/064,618 03/17/2008
and claims benefit of 61/071,151 04/15/2008
and claims benefit of 61/129,526 07/02/2008
and claims benefit of 61/129,859 07/24/2008
and claims benefit of 61/129,970 08/04/2008

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 - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 01/24/2014

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/152,358**

Projected Publication Date: 05/08/2014

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Preliminary Class

315

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

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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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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.

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
14/152,358	01/10/2014	Yossi AZANCOT	POWM0130PUSA1

CONFIRMATION NO. 8993

22045
BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075

NOTICE

OC000000066242641

Date Mailed: 01/24/2014

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file 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 actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
  Yossi AZANCOT
  Amir BEN-SHALOM
  Oola GREENWALD
  Arik ROFE
  Alfred LEI-BOVITZ
  Dov RHODES
  Noam MEYUHAS

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
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/152,358	01/10/2014	Yossi AZANCOT	POWM0130PUSA1

CONFIRMATION NO. 8993

22045
BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075

POA ACCEPTANCE LETTER

OC000000066242777

Date Mailed: 01/24/2014

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/10/2014.

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.

/hteshome/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PTO/AIA/80 (07-12)
Approved for use through 11/30/2014. OMB 0651-0035
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.

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:

■ Practitioners associated with Customer Number: 22045

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 assignments 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:

■ The address associated with Customer Number: 22045

OR

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TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a division of U.S. application Serial No. 12/883,457 filed September 16, 2010, which is a continuation of PCT application Serial No. PCT/IL2008/001641 filed December 18, 2008, which claims the benefit of U.S. provisional application Serial Nos. 61/064,618 filed March 17, 2008; 61/071,151 filed April 15, 2008; 61/129,526 filed July 2, 2008; 61/129,859 filed July 24, 2008; and 61/129,970 filed August 4, 2008, which are hereby incorporated by reference in their entirety.

TECHNICAL FIELD

[0002] The present invention is directed to inductive electrical power transfer. More specifically, the present invention relates to providing a transmission guard for preventing an inductive power outlet from transmitting power in the absence of an inductive power receiver.

BACKGROUND

[0003] Inductive power coupling, as known in the art, allows energy to be transferred from a power supply to an electric load without connecting wires. A power supply is wired to a primary coil and an oscillating electric potential is applied across the primary coil, thereby inducing an oscillating magnetic field. The oscillating magnetic field may induce an oscillating electrical current in a secondary coil placed close to the primary coil. In this way, electrical energy may be transmitted from the primary coil to the secondary coil by electromagnetic induction without the two coils being conductively connected. When electrical energy is transferred from a primary coil to a secondary coil the coil pair are said to be inductively coupled. An electric load wired in series with such a secondary coil may draw energy from the power source wired to the primary coil when the secondary coil is inductively coupled thereto.

[0004] Induction type power outlets may be preferred to the more common conductive power sockets because they provide seamless power transmission and minimize the need for trailing wires.

[0005] Low power inductive electrical power transmission systems have been proposed. One such example is described in United States Patent No. 7,164,255 to Hui. In Hui's system a planar inductive battery charging arrangement enables electronic devices to be charged. The system includes a planar charging module having a charging surface on which a device to be charged is placed. Within the charging module, and parallel to the charging surface, at least one, and preferably an array of primary windings are provided. The primary windings inductively couple with secondary windings within the device to be charged.

[0006] Such systems provide inductive coupling at relatively low power adequate for charging batteries. It will be appreciated however, that base units such as Hui's charging surface which transmit energy continuously, in a largely uniform manner over an extended area, are not suitable for use with high energy systems, such as those required to power computers, light bulbs, televisions and the like.

[0007] Energy losses associated with high power inductive transfer systems are typically larger than those in low power systems such as Hui's charging surface. In addition whereas in low power systems excess heat may be readily dissipated, an uncoupled high power primary coil or its surroundings may become dangerously hot.

[0008] Moreover, the oscillating voltage in a high power primary coil produces an oscillating magnetic field. Where a secondary coil is inductively coupled to the primary coil, the resulting flux linkage causes power to be drawn by the secondary coil. Where there is no secondary coil to draw the power, the oscillating magnetic field causes high energy electromagnetic waves to be radiated in all directions which may have undesired side effects, such as erasing data from credit cards and may be harmful to bystanders particularly to those with pacemakers.

[0009] United States Patent No. 6,803,744, to Sabo, titled "Alignment independent and self-aligning inductive power transfer system" describes an inductive power transfer device for recharging cordless appliances. Sabo's device includes a plurality of inductors which serve as the primary coil of a transformer. The secondary coil of the transformer is arranged within the appliance. When the appliance is positioned proximate to the power transfer device with the respective coils in alignment, power is inductively transferred from the device to the appliance via the transformer.

[0010] The inductors of Sabo's system are arranged in an array and connected to a power supply via switches which are selectively operable to activate the respective inductors. These selectively operable switches are provided to conserve power and to eliminate objectionable electromagnetic fields. '744 thus indicates the problem of electromagnetic leakage as well as the need for each primary coil to be energized from the power supply only when a secondary coil is within effective range. Furthermore the power receiving units described in '744 are bulky and impractical for use with small electrical devices.

[0011] The need remains therefore for a practical inductive power transfer system for safely and conveniently delivering power wirelessly from inductive power outlets to inductive power receivers in an energy efficient manner. The present invention addresses this need.

SUMMARY

[0012] It is an aim of the invention to provide a transmission system comprising at least one inductive power outlet for transferring power inductively to at least one inductive power receiver, at least one alignment mechanism for aligning the power receiver to the power outlet and at least one signal transfer system for passing control signals from the power receiver to the power outlet. Typically, the inductive power outlet comprises at least one primary inductive coil wired to a power source via a driver, the driver for providing an oscillating voltage across the primary inductive coil at high frequency, and a primary ferromagnetic core. The inductive power receiver comprises at least one secondary inductive coil for coupling with the primary inductive coil, the secondary inductive coil being wired to a power regulator. The signal transfer system comprises a signal emitter associated with the power receiver and a signal detector associated with the power outlet.

[0013] Optionally, the alignment mechanism comprises a first element associated with the power outlet and a second magnetic element associated with the power receiver. Typically, the signal emitter comprises an optical emitter and the signal detector comprises an optical detector. Optionally, again, the power regulator comprises a rectifier for converting an AC input from the inductive power outlet into a DC output for powering the electrical device. Another aim of the invention is to present an inductive power receiver for receiving power inductively from an inductive power outlet. Optionally, the system comprises a power converter selected from the group

comprising: a transformer, a DC-to-DC converter, an AC-to-DC converter, an AC-to-AC converter, a flyback transformer, a flyback converter, a full-bridge converter, a half-bridge converter and a forward converter.

[0014] A further aim of the invention is to present an inductive power transfer system comprising at least one inductive power outlet for transferring power inductively to at least one inductive power receiver, the inductive power outlet comprising at least one primary inductor wired to a power source via a driver, and the inductive power receiver comprising at least one secondary inductor for coupling with the primary inductor, the secondary inductor for providing power to an electric load; the inductive power transfer system comprising a low heat-loss full wave rectifier comprising: a first half-wave rectifier having one anode wired to a first output terminal and one cathode wired to a first input terminal; a second half-wave rectifier having one anode wired to the first output terminal and one cathode wired to a second input terminal; a third half-wave rectifier having one anode wired to the first input terminal and one cathode wired to a second output terminal, and a fourth half-wave rectifier having one anode wired to the second input terminal and one cathode wired to the second output terminal; the full wave rectifier for providing an output of constant polarity from an input of variable polarity, wherein at least one half-wave rectifier comprises an electronic switch configured to be in its ON state when the current flowing through the cathode of the switch exceeds a predetermined threshold.

[0015] Optionally, the first half-wave rectifiers comprises a first electronic switch configured to be in its ON setting when the current flowing through its cathode exceeds a first predetermined threshold, and the second half-wave rectifiers comprises a second electronic switch configured to be in its ON setting when the current flowing through its cathode exceeds a second predetermined threshold. Preferably, at least one half-wave rectifier comprises an electronic switch configured to be switched between its ON and OFF states in synchrony with the frequency of the input signal.

[0016] Preferably, the first half-wave rectifier comprises a first electronic switch configured to be in its ON state when the current flowing through its cathode exceeds a predetermined threshold; the second half-wave rectifiers comprises a second electronic switch configured to be in its ON state when the current flowing through its cathode exceeds a predetermined threshold; the third half-wave rectifiers comprises a third electronic switch configured to be switched between its

ON and OFF states in phase with the voltage signal at the second input terminal, and the fourth half-wave rectifiers comprises a third electronic switch configured to be switched between its ON and OFF states in phase with the voltage signal at the first input terminal.

[0017] Typically the electronic switch comprises a transistor, in particular, a MOSFET device. Preferably, the electronic switch comprises: a MOSFET device comprising a source terminal, a drain terminal and a gate terminal; a half-wave rectifier wired to the source terminal and the drain terminal in parallel with the MOSFET device, and a current monitor configured to monitor a drain-current flowing through the drain terminal and to send a gate signal to the gate terminal such that the MOSFET is switched to its ON state when the drain-current exceeds a first threshold current and the MOSFET is switched to its OFF state when the drain-current falls below a second threshold current. Optionally, the current monitor comprises a current transformer.

[0018] It is another aim of the invention to present an inductive power transfer system comprising at least one inductive power outlet comprising at least one primary inductive coil wired to a power supply via a driver; the primary inductive coil for forming an inductive couple with at least one secondary inductive coil wired to an electric load, the secondary inductive coil associated with an inductive power receiver wherein the driver is configured to provide a driving voltage across the primary inductive coil, the driving voltage oscillating at a transmission frequency significantly different from the resonant frequency of the inductive couple. Optionally, the driver comprises a switching unit for intermittently connecting the primary inductive coil to the power supply.

[0019] Preferably, the transmission frequency lies within a range in which induced voltage varies approximately linearly with frequency. Optionally, the driver is configured to adjust the transmission frequency in response to the feedback signals.

[0020] Optionally, the inductive power outlet comprising a signal detector adapted to detect a first signal and a second signal, and the driver is configured to: increase the transmission frequency when the first signal is detected by the detector, and decrease the transmission frequency when the second signal is detected by the detector. The feedback signals generally carry data pertaining to the operational parameters of the electric load. Operational parameters are selected from the group comprising: required operating voltage for the electric load; required operating current for the

electric load; required operating temperature for the electric load; required operating power for the electric load; measured operating voltage for the electric load; measured operating current for the electric load; measured operating temperature for the electric load; measured operating power for the electric load; power delivered to the primary inductive coil; power received by the secondary inductive coil, and a user identification code. Optionally, the detector is selected from the list comprising optical detectors, radio receivers, audio detectors and voltage peak detectors.

[0021] Preferably, the driver further comprises a voltage monitor for monitoring the amplitude of a primary voltage across the primary coil. Optionally, the voltage monitor is configured to detect significant increases in primary voltage.

[0022] In preferred embodiments, the driving voltage oscillating at a transmission frequency higher than the resonant frequency of the inductive couple, wherein the primary inductive coil is further wired to a reception circuit comprising a voltage monitor for monitoring the amplitude of a primary voltage across the primary coil, and the secondary inductive coil is further wired to a transmission circuit for connecting at least one electric element to the secondary inductive coil thereby increasing the resonant frequency such that a control signal may be transferred from the transmission circuit to the reception circuit. Optionally, the secondary inductive coil is wired to two inputs of a bridge rectifier and the electric load is wired to two outputs of the bridge rectifier wherein the transmission circuit is wired to one input of the bridge rectifier and one output of the bridge rectifier. Typically, the transmission circuit further comprises a modulator for modulating a bit-rate signal with an input signal to create a modulated signal and a switch for intermittently connecting the electrical element to the secondary inductive coil according to the modulated signal. Optionally, the voltage monitor further comprises a correlator for cross-correlating the amplitude of the primary voltage with the bit-rate signal for producing an output signal.

[0023] In certain embodiments, the control signal is for transferring a feedback signal from the secondary inductive coil to the primary inductive coil for regulating power transfer across an inductive power coupling. The driver may be configured to adjust the transmission frequency in response to the feedback signals. Typically, the system is adapted to transfer a first signal and a second signal, and the driver is configured to: increase the transmission frequency when the first

signal is received by the receiver, and decrease the transmission frequency when the second signal is received by the receiver.

[0024] It is still a further aim of the invention to present an inductive power adaptor comprising: at least one inductive power receiver for receiving power from an inductive power outlet; at least one power connector for conductively connecting the power receiver to at least one electrical device, and a grip for handling the adapter, the grip being thermally isolated from the power receiver such that when the power receiver is in operation a user may handle the adapter without injury. Optionally, the adapter further comprises a printed circuit board.

[0025] Typically, the power receiver is for providing power at a rate above 50W. Preferably, the adapter comprises a cooling system for dissipating heat generated therein. Optionally, the cooling system comprises at least one air outlet, situated above the power receiver, and at least one air inlet, situated below the power receiver such that hot air heated by the power receiver flows out of the adapter through the air outlet and cool air from outside is drawn into the adapter through the air inlets.

[0026] Preferably, the adapter further comprises at least one heat sink for dissipating heat generated by the power receiver. Optionally, the heat sink is a metallic disk. Typically, the heat sink is smaller than the internal diameter of a casing of the adapter thereby allowing air to circulate between the heat sink and the casing.

[0027] It is a further aim of the invention to present a transmission-guard for preventing an inductive power outlet from transmitting power in the absence of an electric load inductively coupled thereto, the inductive power outlet comprising at least one primary coil connectable to a power supply, for inductively coupling with a secondary coil wired to the electric load, the transmission-guard comprising at least one transmission-lock for preventing the primary coil from connecting to the power supply in the absence of a transmission-key.

[0028] Optionally, the transmission-lock comprises at least one magnetic switch and the transmission-key comprises at least one magnetic element associated with the secondary coil. Typically, the transmission-lock comprises an array of magnetic switches configured to connect the

primary coil to the power supply only when activated by a matching configuration of magnetic elements. Optionally, the magnetic switch comprises a magnetic sensor.

[0029] Alternatively, the transmission-guard comprises: at least one emitter for emitting a release-signal, and at least one detector for detecting the release signal; the transmission-key comprises at least one bridge associated with the secondary coil for bridging between the at least one emitter and the at least one detector, such that when the secondary coil is brought into alignment with the primary coil the release signal is guided from the emitter to the detector. Optionally, the release-signal is an optical signal and the bridge comprises at least one optical wave-guide. Alternatively, the release-signal is a magnetic signal and the bridge comprises a magnetic flux guide. In other embodiments the transmission-key comprises a release-signal emitted by an emitter associated with the secondary coil. The release-signal may be an optical signal and the optical signal may be an infra-red pulse received by an optical detector configured to release the transmission-lock. Alternatively the release-signal is a magnetic signal. In some embodiments of the transmission guard the emitter is the secondary coil.

[0030] Optionally, the transmission-guard comprises a low-power power pulse transmitted by the primary coil, such that when the secondary coil is aligned to the primary coil the power pulse is transferred to the secondary coil and the transmission-key is triggered by the power pulse. Preferably, a first transmission-lock is released by a first transmission-key indicating the probable presence of a secondary coil and a second transmission-lock is released by a second transmission-key confirming the presence of the secondary coil. The first transmission-lock may initiate a power pulse transmitted from the primary coil, and the second transmission key being triggered by the power pulse being received by the secondary coil. The magnetic element may comprise a ferrite flux guidance core. Variously, the release-signal is selected from the group comprising: mechanical signals, audio signals, ultra-sonic signals and microwaves. It is also an aim to present separately: a transmission-key for use in the transmission-guard, a transmission-lock for use in the transmission-guard of claim 40, and an inductive power outlet protected by the transmission-guard.

[0031] It is yet another aim of the invention to present an inductive power transfer system comprising at least one inductive power receiver for receiving power from an inductive power outlet, the inductive power outlet comprising at least one primary inductor wired to a power source via a

driver, and the inductive power receiver comprising at least one secondary inductor for coupling with the primary inductor, the secondary inductor for providing power to an electric load; the inductive power transfer system comprising at least one magnetic flux guide for directing magnetic flux from the primary inductor to the secondary inductor wherein the magnetic flux guide comprises an amorphous ferromagnetic material. Optionally, the amorphous ferromagnetic material has a thickness of less than 30 microns. Typically, the amorphous ferromagnetic material is sandwiched between two polymer layers. Preferably, the magnetic flux guide comprises a plurality of layers of amorphous ferromagnetic material separated by electrically insulating material.

[0032] In some embodiments, the magnetic flux guide comprises a wafer of the amorphous ferromagnetic material. Preferably, the wafer is at least partially split so as to reduce the buildup of eddy currents. Optionally, the wafer is circular and having a split extending along at least one diameter. In certain embodiments, the wafer is cut from a sheet of the amorphous ferromagnetic material. Alternatively, the magnetic flux guide comprises microwires of the amorphous ferromagnetic material. Optionally, the microwires form a cloth.

[0033] It is a particular aim of the invention to present an inductive power transfer system comprising at least one inductive power outlet for transferring power inductively to at least one inductive power receiver, the inductive power outlet comprising at least one primary inductor wired to a power source via a driver, and the inductive power receiver comprising at least one secondary inductor for coupling with the primary inductor, the secondary inductor for providing power to an electric load; the inductive power transfer system comprising at least one of the optimization components selected from the group comprising: a low heat-loss full wave rectifier comprising at least one electronic switch configured to be in its ON state when the current flowing through the cathode of the switch exceeds a predetermined threshold; a driver connected between the power source and the primary inductor, the driver being is configured to provide a driving voltage across the primary inductive coil, the driving voltage oscillating at a transmission frequency significantly different from the resonant frequency of the inductive couple formed by the primary inductor and the secondary inductor; an inductive power adaptor comprising a grip for handling the power receiver, the grip being thermally isolated from the power receiver such that when the power receiver is in operation a user may handle the adapter without injury; a transmission-guard for preventing the inductive power outlet from transmitting power in the absence of an electric load inductively

coupled thereto, the transmission-guard comprising at least one transmission-lock for preventing the primary coil from connecting to the power supply in the absence of a transmission-key, and a magnetic flux guide for directing magnetic flux from the primary inductor to the secondary inductor wherein the magnetic flux guide comprises an amorphous ferromagnetic material.

[0034] In further embodiments the inductive power transfer system comprises at least two of the optimization components listed above. Preferably, the inductive power transfer system comprises at least three of the optimization components.

BRIEF DESCRIPTION OF THE DRAWINGS

[0035] For a better understanding of the invention and to show how it may be carried into effect, reference will now be made, purely by way of example, to the accompanying drawings.

[0036] With specific reference now to the drawings in detail, it is stressed that the particulars shown are by way of example and for purposes of illustrative discussion of the preferred embodiments of the present invention only, and are presented in the cause of providing what is believed to be the most useful and readily understood description of the principles and conceptual aspects of the invention. In this regard, no attempt is made to show structural details of the invention in more detail than is necessary for a fundamental understanding of the invention; the description taken with the drawings making apparent to those skilled in the art how the several forms of the invention may be embodied in practice. In the accompanying drawings:

[0037] Fig. 1a is a schematic diagram representing an inductive power transfer system according to an exemplary embodiment of the present invention;

[0038] Fig. 1b is a schematic diagram representing an inductive power receiver for use in the inductive power transfer system of Fig. 1a;

[0039] Fig. 1c is a block diagram representation of the main components of the inductive power transfer system according to the exemplary embodiment of the present invention;

[0040] Fig. 2a is a block diagram representing the main components of a transmission-guard for an inductive power outlet according to another embodiment of the present invention;

[0041] Fig. 2b is a schematic representation of an inductive power outlet protected by an exemplary transmission-guard according to a further embodiment of the present invention wherein a transmission-lock is released by a magnetic key;

[0042] Figs. 2c-e are schematic representations of a transmission-guard according to another embodiment of the invention in which a transmission-lock is releasable by a passive optical transmission-key;

[0043] Fig. 2f is a schematic representation of a transmission-guard according to a further embodiment of the invention in which a transmission-lock is releasable by an active optical transmission-key;

[0044] Fig. 3a is a circuit diagram of a full-wave diode bridge rectifier of the prior art;

[0045] Fig. 3b is a diagram of a Power MOSFET of the prior art;

[0046] Fig. 4a is a block diagram of a first synchronous full-wave rectifier in which two of the diodes of the diode bridge of Fig. 3 have been replaced by electronic switches;

[0047] Fig. 4b is a block diagram of a second synchronous full-wave rectifier according to an exemplary embodiment of the invention in which all four diodes of the diode bridge of Fig. 3 have been replaced by electronic switches;

[0048] Fig. 4c is a schematic diagram showing a current triggered Power MOSFET which draws a gate signal from the current flowing through its drain terminal;

[0049] Fig. 4d is a graphical representation of the variations in drain-current and state of the MOSFET of Fig. 4c, over a single cycle of a sinusoidal input voltage;

[0050] Fig. 4e is a circuit diagram representing a synchronous full-wave MOSFET bridge rectifier according to another embodiment of the invention;

[0051] Fig. 5a shows schematic diagram of a computer being powered by an inductive power outlet via an inductive power adapter according to a further embodiment of the present invention;

[0052] Fig. 5b is an isometric projection of an inductive power adapter according to an exemplary embodiment of the invention;

[0053] Fig. 5c is an exploded view showing the internal components of the power receiver of the exemplary embodiment;

[0054] Fig. 5d is a side view cross section of the power receiver of the exemplary embodiment;

[0055] Fig. 5e is an exploded view of an inductive power receiver having a magnetic flux guide according to another embodiment of the invention;

[0056] Fig. 5f is an isometric view of the inductive power receiver of Fig. 5e;

[0057] Fig. 6a is a block diagram showing the main elements of an inductive power transfer system with a feedback signal path;

[0058] Fig. 6b is a graph showing how the amplitude of operational voltage varies according to frequency;

[0059] Fig. 6c is a schematic diagram representing a laptop computer drawing power from an inductive power outlet;

[0060] Fig. 6d is a flowchart showing a method for regulating power transfer by varying the power transmission frequency in an inductive power transfer system;

[0061] Fig. 6e is a circuit diagram of an inductive power transfer system including a peak detector for detecting large increases in transmission voltage;

[0062] Fig. 7a is a block diagram showing the main elements of an inductive power transfer system with an inductive feedback channel according to another embodiment of the present invention;

[0063] Fig. 7b is a graph showing how the amplitude of operational voltage of an inductive power transfer system varies according to the voltage transmission frequency and the resonant frequency of the system;

[0064] Fig. 7c is a circuit diagram of an inductive power transfer system including an inductive feedback channel for providing coil-to-coil signal transfer concurrently with uninterrupted inductive power transfer between the coils in accordance with another embodiment of the invention, and

[0065] Fig. 7d is a flowchart showing a method for transferring a signal from the secondary inductive coil to a primary inductive coil of an inductive power transfer system according to still a further embodiment of the invention.

DETAILED DESCRIPTION

[0066] As required, detailed embodiments of the present invention are disclosed herein; however, it is to be understood that the disclosed embodiments are merely exemplary of the invention that may be embodied in various and alternative forms. The figures are not necessarily to scale; some features may be exaggerated or minimized to show details of particular components. Therefore, specific structural and functional details disclosed herein are not to be interpreted as limiting, but merely as a representative basis for teaching one skilled in the art to variously employ the present invention.

[0067] Reference is now made to Figs. 1a and 1b showing an inductive power outlet 200 and an inductive power receiver 300 for use in an exemplary inductive power transfer system 100 according to an exemplary embodiment of the invention.

[0068] The inductive power outlet 200 consists of four primary inductors 220a-d incorporated within a platform 202. The inductive power receiver 300 includes a secondary inductor 320 incorporated within a case 302 for accommodating a mobile telephone 342. When a mobile telephone 342 is placed within the case 302 a power connector 304 electrically connects the secondary inductor 320 with the mobile telephone 342. As shown in Fig. 1a, the inductive power

receiver 300 may be placed upon the platform 202 in alignment with one of the primary inductors 220b so that the secondary inductor 320 inductively couples with the primary inductor 220b.

[0069] Referring now to Fig. 1c, which shows a block diagram representing the main components of the inductive transfer system 100, various features are included to improve power transfer across the inductive couple.

[0070] The inductive power outlet 200 includes a primary inductor 220, wired to a power supply 240 via a driver 230. The driver 230 typically includes electronic components, such as a switching unit for example, for providing an oscillating electrical potential to the primary inductor 220. The oscillating electrical potential across the primary inductor 220 produces an oscillating magnetic field in its vicinity.

[0071] The inductive power receiver 300 includes a secondary inductor 320 wired to an electric load 340, typically via a rectifier 330. The secondary inductor 320 is configured such that, when placed in the oscillating magnetic field of an active primary inductor 220, a secondary voltage is induced across the secondary inductor 320. The secondary voltage may be used to power the electric load 340. It is noted that an induced secondary voltage across the secondary inductor 320 produces an alternating current (AC). Where the electric load 340 requires direct current (DC), such as for charging electrochemical cells, the rectifier 330 is provided to convert AC to DC.

[0072] In contradistinction to prior art inductive power transfer systems, which have proved impractical or commercially unviable, embodiments of the current invention include further elements for improving the efficiency of power transfer from the inductive power outlet 200 to the inductive power receiver 300. For example, preferred embodiments of the invention include a signal transfer system 400, an alignment mechanism 500 and a magnetic flux guide 600.

[0073] The signal transfer system 400 provides a channel for passing signals between the inductive power receiver 300 and the inductive power outlet 200. The signal transfer system 400 includes a signal emitter 420, associated with the inductive power receiver 300 and a signal detector 440, associated with the inductive power outlet 200. Signals may perform a variety of functions such as inter alia, confirming the presence of a power receiver 300, regulating power transfer or for communicating required power transmission parameters. The latter being particularly useful in

systems adapted to work at multiple power levels. Various signal transfer systems may be used such as optical, inductive, ultrasonic signal emitters or the like in combination with appropriate detectors.

[0074] The alignment mechanism 500 is provided to facilitate the alignment of the secondary inductor 320 with the primary inductor 220 thereby improving the efficiency of the inductive transfer system 100. Where the user is able to see the primary inductor 220 directly, the secondary inductor 320 may be aligned by direct visual observation. However, where the primary inductor 220 is concealed behind an opaque surface, alternative alignment mechanisms 500 may be necessary. Such alignment mechanisms 500 may include tactile, visual and/or audible indications, for example.

[0075] The magnetic flux guide 600 is provided to guide magnetic flux from the primary inductor 220 to the secondary inductor 320 and to prevent flux leakage out of the inductive power transfer system 100, particularly into metallic or other conductive materials in the vicinity.

[0076] Prior art inductive power transfer systems have typically been either inefficient or impractical for powering electrical devices wirelessly. As a result, in spite of the long felt need to reduce trailing wires, the use of inductive power transfer has been generally limited to low power applications such as the charging of batteries. In order to be practical, an inductive power transfer system must be efficient, safe and unobtrusive, preferably having small dimensions and being lightweight. As will be described hereinbelow, embodiments of the present invention are directed towards providing an inductive power transfer system which answers these requirements.

[0077] Particular aspects of the current invention include: a transmission-guard for preventing the inductive power outlet 200 from transmitting power in the absence of an inductive power receiver 300; an AC-DC rectifier 330 which uses electronic switches for reducing heat loss from diodes; an inductive power receiver 300 having a heat dissipation system such that a user may comfortably and safely handle the inductive power receiver 300; a magnetic flux guide 600 constructed from thin materials and which is adapted to improve flux linkage between the primary inductor 220 and the secondary inductor 320 as well as to prevent flux leakage into the surroundings; a driver 230 configured and operable to generate a driving voltage which oscillates at a transmission frequency which is substantially different from the resonant frequency of the inductive couple.

[0078] Any one of the abovedescribed aspects by itself represents a significant improvement to the prior art. However, it is particularly noted that for any inductive power transfer system 100 to be practical for powering electrical devices, it needs to incorporate at least two or more of the abovedescribed features in combination. More detailed descriptions of embodiments of the invention which incorporate these features are given below.

Transmission-Guard

[0079] Reference is now made to Fig. 2a which shows a block diagram representing a transmission-guard 2100 for preventing an inductive power outlet 2200 from transmitting power in the absence of a secondary unit 2300 connected to an electric load 2340, according to another embodiment of the invention.

[0080] The inductive power outlet 2200 consists of a primary coil 2220, wired to a power supply 2240, for inductively coupling with a secondary coil 2320 wired to an electric load 2340. The primary coil 2220 is wired to the power supply 2240 via a driver 2230 which provides the electronics necessary to drive the primary coil 2220. Driving electronics may include a switching unit providing a high frequency oscillating voltage supply, for example. Where the power outlet 2200 consists of more than one primary coil 2220, the driver 2230 may additionally consist of a selector for selecting which primary coil 2220 is to be driven.

[0081] It is a particular feature of this embodiment of the invention that a transmission-guard 2100 is provided consisting of a transmission-lock 2120 connected in series between the power supply 2240 and the primary coil 2220. The transmission-lock 2120 is configured to prevent the primary coil 2220 from connecting to the power supply 2240 unless it is released by a transmission-key 2140. The transmission-key 2140 is associated with the secondary unit 2300 and serves to indicate that the secondary coil 2320 is aligned to the primary coil 2220.

[0082] With reference to Fig. 2b, a schematic representation is shown of an inductive power outlet 2200 protected by an exemplary magnetic transmission-guard 2100 according to another embodiment of the present invention. Power may only be provided by the protected power outlet 2200 when an authenticated secondary unit 2300 is aligned thereto.

[0083] The protected power outlet 2200 includes a magnetic transmission-lock 2120 consisting of an array of magnetic switches 2122 electrically connected in series between the primary coil 2220 and the driver 2230. A magnetic transmission-key 2140 consisting of an array of magnetic elements 2142 is provided within the authenticated secondary unit 2300.

[0084] The configuration of magnetic elements 2142 in the transmission-key 2140 is selected to match the configuration of magnetic switches 2122 in the transmission-lock 2120. The authenticated secondary unit 2300 may be aligned with the protected induction outlet 2200 by aligning both the transmission-key 2140 with the transmission-lock 2120 and the secondary coil 2320 with the primary coil 2220. Once correctly aligned, all the magnetic switches 2122 in the transmission-lock 2120 are closed and the driver 2230 is thereby connected to the primary coil 2220.

[0085] Various examples of magnetic switches 2122 are known in the art including for example reed switches, Hall-effect sensors or such like. Such magnetic switches 2122 may be sensitive to any magnetic elements 2142 such as either North or South poles of permanent magnets or electromagnetic coils for example. It is further noted that Hall-effect sensors may be configured to sense magnetic fields of predetermined strength.

[0086] According to certain embodiments, the magnetic transmission-key 2140 may consist of a permanent magnet and a ferromagnetic element incorporated with in the secondary unit 2300. The characteristics of the magnetic field produced by a transmission-key of this type depend upon the strength and position of the permanent magnetic as well as the dimensions and characteristics of the ferromagnetic element. The magnetic transmission-lock 2120 may consist of an array of magnetic switches, such as unipolar Hall switches for example, which are strategically placed and orientated such that they connect the primary coil 2220 to the driver 2230 only when triggered by a particular combination of a permanent magnet and ferromagnetic element.

[0087] It is noted that permanent magnets may commonly be provided to assist with alignment of the secondary coil 2320 to the primary coil 2220. Ferromagnetic elements may also be commonly included in secondary units 2300 for providing flux guidance from the primary coil 2220 to the secondary coil 2320. The magnetic transmission-lock 2120 may therefore be made sensitive to these components. Indeed a single magnetic transmission-lock 2120 may be provided which is

configured to detect various secondary units and to selectively connect more than one primary coil 2220 depending on the secondary unit detected.

[0088] Referring back to Fig. 2a, according to other embodiments of the transmission-guard 2100, a power outlet 2200 may be protected by a transmission-lock 2120 which may be released when a release signal S_R is received by a detector 2124. The release signal S_R may be actively emitted by the transmission-key 2140 or alternatively the transmission-key may passively direct the release signal towards the detector 2124.

[0089] One example of a passive transmission-key 2140 is shown in Figs. 2c-e which represents an optical transmission-guard 2100 according to a further embodiment of the invention.

[0090] The transmission-guard 2100 consists of an active optical transmission-lock 2120′ incorporated within an inductive power outlet 2200′ and a passive optical transmission-key 2140′ incorporated within the secondary unit 2300.

[0091] With particular reference to Fig. 2c, the optical transmission-lock 2120′ includes a switch 2122′, an optical detector 2124′, such as a photodiode, a phototransistor, a light dependent resistor or the like, and an optical emitter 2126′ such as light emitting diode (LED). The switch 2122′ is normally open but is configured to close when a release signal S_R is received by the optical detector 2124′, thereby connecting a primary coil 2220 to a driver 2230. The optical emitter 2126′ is configured to emit the optical release-signal S_R which is not directly detectable by the optical detector 2124′.

[0092] Referring now to Fig. 2d, the optical transmission-key 2140′ includes a bridging element 2142′ such as an optical wave-guide, optical fiber, reflector or the like. The bridging element 2142′ is configured to direct the optical release-signal S_R from the optical emitter 2124′ towards the optical detector 2126′, when a secondary coil 2320 is aligned with the primary coil 2220.

[0093] When the secondary unit 2300 is correctly aligned with the inductive power outlet 2200, as shown in Fig. 2e, the secondary coil 2320 aligns with the primary coil 2220′ and the passive optical transmission-key 2140′ aligns with the optical transmission-lock 2120′. The optical release-

signal S_R is thus detected by the optical detector 2126′ and the switch 2122′ is closed connecting the primary coil 2220 to the driver 2230.

[0094] It is noted that many materials are partially translucent to infra-red light. It has been found that relatively low intensity infrared signals from LEDs and the like, penetrate several hundred microns of common materials such as plastic, cardboard, Formica or paper sheet, to a sufficient degree that an optical detector 2124′, such as a photodiode, a phototransistor, a light dependent resistor or the like, behind a sheet of from 0.1 mm to 2 mm of such materials, can receive and process the signal. For example a signal from an Avago HSDL-4420 LED transmitting at 850nm over 24 degrees, may be detected by an Everlight PD15-22C-TR8 NPN photodiode, from behind a 0.8 mm Formica sheet. For signaling purposes, a high degree of attenuation may be tolerated, and penetration of only a small fraction, say 0.1% of the transmitted signal intensity may be sufficient.

[0095] Although an optical transmission-key 2140′ is described above, it will be appreciated that other passive transmission-keys may incorporate bridging elements configured to guide release-signals of other types. For example, a ferromagnetic bridge may be incorporated for transmitting magnetic release-signal from a magnetic element to a magnetic detector such as a Hall-effect sensor or the like. The magnetic emitter in such a case may be the primary coil itself.

[0096] Alternatively, audio signals may be guided through dense elements, or low power microwaves along microwave wave guides for example.

[0097] An example of an active optical transmission-key 2140″ is shown in Fig. 2f representing a transmission-guard 2100″ according to another embodiment of the invention.

[0098] The transmission-guard 2100″ of this embodiment includes a transmission-lock 2120″ incorporated within an inductive power outlet 2200 and an active optical transmission-key 2140″ incorporated within secondary unit 2300.

[0099] The active optical transmission-key 2140″ includes an optical emitter 2142″, configured to emit an optical release-signal S_R, and the transmission-lock 2120″ includes a switch 2122″ and an optical detector 2124″. The transmission-lock 2120″ is configured to close the switch

2122″ thereby connecting a primary coil 2220 to a driver 2230 when the optical detector 2124″ receives the release-signal S_R.

[0100] When the secondary unit 2300 is aligned with the inductive power outlet 2200, the transmission-key 2140″ emits an optical release-signal S_R which is received by the optical detector 2124″ of the transmission-lock 2120″ and this closes the switch 2122″. Thus the inductive power outlet 2200″ is enabled to transfer power to the secondary coil 2320.

[0101] It will be appreciated that a release signal S_R may be coded to provide a unique identifier. Coding may be by modulation of frequency, pulse frequency, amplitude or the like. The code may be used, for example, to identify the type or identity of the secondary unit for authentication. Other data may additionally be encoded into the release-signal. This data may include required power transmission parameters, billing information or other information associated with the use of the power outlet.

[0102] Although an optical active transmission-key 2140″ is described above, it will be appreciated that other active transmission-keys may emit other types of release-signals. For example, the secondary coil 2320 may be used to transmit a magnetic release-signal to a magnetic detector incorporated in the transmission-lock. This could be a Hall-effect sensor or the like or even the primary coil 2220 itself.

[0103] To actively emit a release-signal transmission-keys typically require a power source. In some cases, particularly where the secondary unit is incorporated into a portable electrical device, power may be provided by internal power cells with the secondary unit. Alternatively, power may be drawn from a power pulse transferred from the primary coil to the secondary coil.

[0104] In certain embodiments of the invention, the inductive power outlet transfers a periodic low energy power pulse, for example a pulse of a few milliseconds duration may be transmitted by the primary coil at a frequency of 1 hertz or so. When a secondary coil is brought into the vicinity of the primary coil the power may be transferred to the secondary coil and may be used to power an active transmission-key.

[0105] In other embodiments of the transmission-guard, a first transmission-lock (preferably a passive transmission-lock) associated with the secondary unit, releases a first transmission-lock thereby indicating the probable presence of a secondary coil. A low energy power pulse is then emitted by the primary coil to power an active second transmission-key which may release a second transmission-lock thereby connecting the primary coil to a driver.

Synchronous Rectifier

[0106] Reference is now made to Fig. 3a showing a circuit diagram of a typical full-wave rectifier 3100 of the prior art. The rectifier has two input terminals T_1 and T_2 and two output terminals T_3 and T_4. When an alternating current source AC_{in} is wired to the two input terminals T_1 and T_2, a direct current output DC_{out} may be drawn from the two output terminals T_3 and T_4 of the rectifier 3100.

[0107] Four diodes D_{1-4} are arranged so that two diodes D_1 and D_2 form a first branch 3110 of a Graetz circuit and the other two diodes D_3 and D_4 form a second branch 3120 of the Graetz circuit. The anodes of two upstream diodes D_1 and D_3 are wired to the first output terminal T_3 and the cathodes of the two downstream diodes D_2 and D_4 are wired to the second output terminal T_4. The cathode of the first upstream diode D_1 and the anode of first downstream diode D_2 are wired to the first input terminal T_1 and the cathode of the second upstream diode D_3 and the anode of second downstream diode D_4 are wired to the second input terminal T_2.

[0108] When the polarity of the first input terminal T_1 is positive relative to the second input terminal T_2, current flows through the first downstream diode D_2 and through the second upstream diode D_3. When the polarity of the first input terminal T_1 is negative relative to the second input terminal T_2, current flows through the second downstream diode D_4 and through the first upstream diode D_1.

[0109] Diode bridge rectifiers, such as that shown in Fig. 3a, are used to produce an output with a fixed polarity that is independent of the polarity of the input. Such diode bridge rectifiers may be used in AC-to-DC power converters, for example. Optionally, the output is smoothed by a smoothing capacitor C.

[0110] It will be appreciated that power is lost from each diode with each reversal of polarity. In high frequency power converters, where the polarity of the input terminals T_1 and T_2 may oscillate at a frequencies of 100 kHz or more, such power losses may result in significant heating of the bridge circuit and its surrounding components, which may result in reduced reliability or failure.

[0111] Power loss may be reduced by replacing diodes with electronic switches, such as the Power MOSFETs shown in Fig. 3a, which have much lower associated power loss. Fig. 4a is a block diagram of one such synchronous full-wave rectifier 4200 in which the first downstream diode D_2 and the second downstream diode D_4 of the diode bridge of Fig. 3a have been replaced by two electronic switches M_2 and M_4.

[0112] The electronic switches M_2 and M_4 are controlled by switching signals G_2 and G_4 which switch them between the ON and OFF states. The switching signal G_2 controlling the electronic switch M_2 must be synchronized to switch to the ON state whenever the polarity of the first input terminal T_1 is positive relative to the second input terminal T_2. The switching signal G_4 controlling the electronic switch M_4 must be synchronized to switch to the ON state whenever polarity of the first input terminal T_1 is negative relative to the second input terminal T_2.

[0113] Typically, this synchronization is achieved by drawing the first switching signal G_2 from the voltage of the second input terminal T_2 and drawing the second switching signal G_4 from the voltage of the first input terminal T_1.

[0114] The above described synchronous full-wave rectifier 4200 in which two diodes are replaced by MOSFETs may reduce power loss from the rectifier by up to 50% as compared with the diode bridge rectifier 4100 of the prior art. Where further reduction in power loss is required it would be desirable to replace the remaining two diodes D_1 and D_3 with electronic switches. However, it is much more difficult to synchronize four electronic switches without inadvertently causing short circuits between either the input or output terminals.

[0115] Fig. 4b is a block diagram of a second synchronous full-wave rectifier 4300 in which all four diodes D_{1-4} of the diode bridge of Fig. 3a have been replaced by electronic switches M_{1-4}. In

order to provide an output DC_{out} of constant polarity, the switching signals G_{1-4} need to be carefully controlled.

[0116] When the polarity of the first input terminal T_1 is positive relative to the polarity of the second input T_2, the first upstream and second downstream electronic switches M_1 and M_4 must be switched to the OFF state and the first downstream and second upstream electronic switches M_2 and M_3 must be switched to the ON state. When the polarity of the first input terminal T_1 is negative relative to the polarity of the second input terminal T_2, the first upstream and second downstream electronic switches M_1 and M_4 must be switched to the ON state and the electronic switches first downstream and second upstream electronic M_2 and M_3 must be switched to the OFF state.

[0117] Synchronization of the switching signals G_{1-4}, is complicated by an additional constraint. In order to prevent shorting across the output terminals, the upstream and downstream electronic switches along a common branch 4310, 4320 must never be in the ON state at the same time. In practice, when both of the switching signals G_1 and G_2 controlling the two electronic switches M_1 and M_2 along the first branch 4310 are each drawn from one of the input terminals T_1 and T_2, the two switches M_1 and M_2 are periodically both in their ON states. Because the switches M_1 and M_2 are adjacent along the first branch 4310 of the circuit, a short circuit is formed between the output terminals T_3 and T_4. Similar shorting may occur along the second branch 4320 when the switching signals G_3 and G_4 which control the other two electronic switches M_3 and M_4 are each drawn from one of the input terminals T_1 and T_2.

[0118] According to preferred embodiments of the invention, only the switching signals G_2 and G_4 for the downstream electronic switches M_2 and M_4 are drawn directly from the voltage at the input terminals T_1 and T_2 whilst the switching signals G_1 and G_3 for the upstream switches M_1 and M_3 are controlled independently. Preferably, the switching signals G_1 and G_3 are responsive to changes in the cathode current of switches M_1 and M_3 respectively.

[0119] Fig. 4c shows an exemplary current-triggered synchro-rectifier 4330, which may serve as an electronic switch M incorporated into a bridge synchro-rectifier 4300. The current-triggered synchro-rectifier 4330 includes a Power MOSFET 4130, such as that shown in Fig. 3b, and a current monitor 4332. The current monitor 4332 is wired to the drain terminal 4136 of the Power

MOSFET 4130 and is configured to send a current-based gate signal G_i to the gate terminal 4138 of the Power MOSFET when the drain-current I_d exceeds a predetermined threshold I_{th}. Although in the above example the current-triggered synchro-rectifier 4330 includes an n-channel MOSFET 4130, it will be appreciated that in other embodiments current-triggered synchro-rectifiers may incorporate p-channel MOSFETs.

[0120] In order to understand the functioning of the current-triggered synchro-rectifier 4330 consider the case where a sinusoidal alternating voltage is connected across the cathode 4334 and the anode 4336 terminals of the current-triggered synchro-rectifier 4330. Fig. 4d shows three graphs showing variations in 1) the voltage drop V_d from the cathode 4334 to the anode 4336, 2) the drain-current I_d, and 3) the MOSFET state during one voltage cycle.

[0121] For the first half of the sinusoidal cycle the voltage drop V_d between the cathode 4334 and the anode 4336 is negative, thus the polarity of the cathode 4334 is negative relative to the anode 4336. Consequently, no current flows through the drain-terminal 4136 and the MOSFET remains in the OFF state.

[0122] At the beginning of the second half of the sinusoidal cycle, the voltage drop V_d between the cathode 4334 and the anode 4336 increases above zero. The polarity of the cathode 4334 becomes positive relative to the anode. 4336 so a small drain-current I_d begins to flow through the diode 4132. This current is measured by the current monitor 4332.

[0123] During the third quarter of the cycle, the voltage drop V_d between the cathode 4334 and the anode 4336 continues to rise. The current monitor 4332 measures an increasing drain-current I_d.

[0124] When the drain-current I_d exceeds the predetermined threshold I_{th}, the current-based gate signal G_i triggers the MOSFET 4130 to switch to the ON state.

[0125] As long as the MOSFET 4130 is in the ON state, current flows through the ohmic conductive path of the electronic switch 4131. Consequently, the drain-current I_d varies in proportion to the voltage drop V_d.

[0126] During the last quarter of the cycle, the voltage drop V_d between the cathode 4334 and the anode 4336 decreases. The current monitor 4332 measures a decreasing drain-current I_d.

[0127] When the drain-current falls below the predetermined threshold I_{th}, the current-based gate signal G_i triggers the MOSFET 4130 to switch to the OFF state.

[0128] Fig. 4e is a circuit diagram representing a synchronous full-wave bridge rectifier 4400 incorporated within an inductive power receiver according to a further embodiment of the invention. The electronic switches M_{1-4} are all MOSFET transformers having three terminals: a source terminal, a drain terminal and a gate terminal. The upstream MOSFETs M_1 and M_3 are both n-channel MOSFETs and their source terminals are both wired to the first output terminal T_3 of the rectifier. The downstream MOSFETs M_2 and M_4 are both p-channel MOSFETs and their source terminals are both wired to the second output terminal T_4 of the rectifier. The drain terminals of the first upstream MOSFET M_1 and the first downstream MOSFET M_2 are both wired to the first input terminal T_1 of the rectifier and the drain terminals of the second upstream MOSFET M_3 and the second downstream MOSFET M_4 are both wired to the second input terminal T_3 of the rectifier.

[0129] The input terminals T_1 and T_2 are wired to a secondary coil L_2 of a power transformer which is inductively coupled to a primary coil (not shown). The secondary coil L_2 provides an alternating current input to the two input terminals T_1 and T_2.

[0130] The gate terminals of the downstream MOSFETs M_2 and M_4 are wired to the input terminals T_2 and T_1 via smoothing circuits 4420, 4440 respectively. The switching signals G_2 and G_4, are therefore in out of phase with each other.

[0131] The gate terminals of the upstream MOSFETs M_1 and M_3 receive switching signals G_1 and G_3 driven by their own drain-currents I_{d1} and I_{d3}. The drain current I_{d1} of the first upstream MOSFET M_1 is monitored by a first current transformer 4410, in which a primary current monitor coil CT_{1P} transfers the current signal to a secondary current monitor CT_{2S} the output of which is rectified and relayed to a first input IN_1 of a driver 4450 which amplifies the signal before outputting a signal from a first output OUT_1. This first output signal from the driver is then fed back to the first upstream MOSFET M_1 such that when the drain current I_{d1} exceeds a threshold value the MOSFET

M_1 switches itself to the ON state. This produces a switching signal G_1 at the same frequency as the alternating current input AC_{in}.

[0132] Similarly the drain current I_{d3} of the second upstream MOSFET M_2 is monitored by a second current transformer 4430, in which a primary current monitor coil CT_{2P} transfers the current signal to a secondary current monitor CT_{2S} the output of which is rectified and relayed to a second input IN_2 of the driver 4450 which amplifies the signal before outputting a signal from a second output OUT_2. The second output signal from the driver is then fed back to the second upstream MOSFET M_3 such that when the drain current I_{d2} exceeds a threshold value the MOSFET M_3 switches itself to the ON state. This produces a switching signal G_3 at the same frequency as the alternating current input AC_{in}.

[0133] Although in the example hereabove, current transformers 4410, 4430 are used to monitor the drain-currents I_{d1}, I_{d2}, in alternative embodiments other current monitors such as ammeters, galvanometers, Hall effect sensors or the like may be preferred.

Heat Dissipation within Inductive Power Receivers

[0134] Reference is now made to Fig. 5a showing a laptop computer 5300 drawing power from an inductive power outlet 5200 via an inductive power adapter 5100, according to a further embodiment of the present invention. The adaptor is configured such that it can be safely handled by a user while it is operation.

[0135] The power adapter 5100 includes an inductive receiver 5120, housed in a casing 5160 and a power connector 5140 for connecting to an electrical device, such as the computer 5300. The inductive receiver 5120 includes a secondary inductor 5122 configured to couple with a primary inductor 5220 in the power outlet 5200. Typically, the primary inductor 5220 is wired to a power source 5240 via a driver 5230. The driver 5230 provides an oscillating driving voltage to the primary inductive coil 5220.

[0136] Preferably, an alignment mechanism (not shown) is provided for aligning the secondary inductor 5122 to the primary core 5220. The alignment mechanism may consist of a

primary magnetic element in the inductive outlet configured to snag and/or engage a secondary magnetic element in the power adaptor 5100.

[0137] It will be appreciated that electrical components of power converters generate heat. There are a number of problems associated with the heat generated in an inductive receiver 5120, particularly in systems running at high power above say 50W or 100W. Heat produces high temperatures which can reduce overall efficiency and may also reduce the reliability of components. Much design effort is typically required to overcome this problem, and other factors such as the dimensions of the system may be compromised as a result.

[0138] In practice, electrical components of the power adapter 5100 are selected which function at high temperatures. However, the maximum temperature of the casing 5160 is further constrained by the requirement that it is to be handled by the user. If the casing 5160 reaches high temperatures, above 50 degrees Celsius or so, a user may find handling the adapter to be unpleasant and may even be at risk of injury. In order to allow a user to comfortably and safely handle the adaptor 5100, it is a particular feature of the present invention that a heat dissipation system for directing heat away from the hand grip 5162.

[0139] The heat dissipation system may be better understood with reference to Figs. 5b-d showing an exemplary inductive power adapter 5100 according to another embodiment of the invention. Fig. 5b shows an isometric projection, Fig. 5c shows an exploded view and Fig. 5d shows a cross-section through the same embodiment of the power adaptor 5100.

[0140] The exemplary power adapter 5100 includes an inductive receiver 5120, and a heat sink 5130 housed between a lower casing 5160L, and an upper casing 5160U and a power connector 5140 which can be wound around a hand grip 5162 for storage.

[0141] The inductive power receiver 5120 consists of a secondary inductive coil 5122 a ferromagnetic disk 5124 and a printed circuit board (PCB) 5126. The heat sink 5130 of the exemplary embodiment consists of a metallic disk sandwiched between the inductive receiver 5120 and the upper casing 5160U. The ferromagnetic disk 5124 may serve as a flux guiding core to improve inductive coupling between the secondary inductive coil 5122 and a primary inductive coil 5220 (Fig. 1) of an inductive power outlet 5200.

[0142] When the power adapter 5100 is in operation, heat is generated by a number of components of the inductive receiver 5120. An alternating current is induced in the secondary inductive coil 5122 therefore causing the coil wire to heat up. Furthermore hot spots are typically generated around certain electrical components typically provided on the PCB 5126, such as rectifiers, diodes, MOSFETS, power regulators, LDOs, feedback transmitters or the like.

[0143] The heat sink 5130 is typically a thermal conductive material such as aluminum, copper or the like which serves to distribute heat more evenly around the inductive receiver 5120. Preferably, thermal vias are provided through the PCB 5126 and thermal grease or a similar agent is used to improve thermal contact between the heat sink 5130, PCB 5126, ferromagnetic disk 5124 and secondary coil 5122.

[0144] Air outlets 5132 are provided in the top 5161 of the upper casing 5160U allowing hot air from inside the power adaptor to escape into the atmosphere. Air inlets 5134 are provided in the bottom 5165 and sides 5167 of the lower casing 5160L and on the sides 5163 of the upper casing 5160U allowing cool air to enter into the power adaptor from below. It is a particular feature of the exemplary embodiment that the outer diameter d of the heat sink is smaller the inner diameter D of the casing 5160 thus allowing air to circulate around the inductive receiver 5120. Thus hot air heated by the inductive power receiver 5120 flows out of the adapter 5100 through the outlets 5132 and cool air from outside is drawn into the adapter 5100 through said air inlets 5134. The hand grip 5162 may be additionally protected from heat by a barrier of thermal insulating material.

[0145] It is noted that the air outlets 5132 may allow dust to enter the power adapter 5100. In some embodiments therefore a dust-guard is provided to prevent dust from entering the outlets 5132. In the exemplary embodiment, the grip 5162 overhangs the outlets 5132 serving as a dust-guard to prevent dust from entering the adapter 5100 whilst in operation. When not in operation, the power connector 5140 may be wound around the hand grip 5162, thereby providing further protection against dust.

[0146] In certain embodiments, the PCB 5126 includes a light emitting diode (not shown) used as a feedback transmitter for sending signals to an optical detector in the power outlet 5200 (Fig. 5a). It will be appreciated that in such embodiments, it is necessary that a clear line-of-sight is

maintained between the optical emitter and detector. To this end, in preferred embodiments an optical window, transparent to the wavelength of the wavelength of the optical transmission, is provided through the secondary inductive coil 5122, ferrite disk 5124, lower casing 5160L and other layers between the PCB 5126 and the primary coil 5220 (Fig. 5a).

Magnetic Flux Guidance

[0147] Referring now to Figs. 5e and 5f, an inductive power receiver 5200 is shown including a secondary inductor 5220, a magnetic flux guide 5260 and a PCB 5270, according to a further embodiment of the invention. The secondary inductor 5220 is configured to receive power inductively from a primary inductor of an inductive power outlet (not shown). The magnetic flux guide 5260 is provided to direct magnetic flux from the primary inductor to the secondary inductor 5220 and to reduce flux leakage to the surroundings. The magnetic flux guide 5260 consists of a ferromagnetic core 5262 and a magnetic shield 5264. The ferromagnetic core 5262 is provided to guide magnetic flux from an active primary inductor to the secondary inductor 5220.

[0148] In preferred embodiments, the ferromagnetic core 5262 is constructed from amorphous ferromagnetic material, typically cut into wafers from a sheet approximately 20 microns thick or so. In one exemplary embodiment, the ferromagnetic core consists of two amorphous ferromagnetic wafers 5262a, 5262b. A first wafer 5262a is adhered to the primary inductor 5220 by a first adhesive insulating layer 5265a. A second wafer 5262b is adhered to the first wafer 5262a by a second adhesive insulating layer 5265b. The two wafers 5262a, 5262b serve as a ferromagnetic core guiding magnetic flux from a primary inductor to the secondary inductor 5220. It is a particular feature of preferred embodiments that the ferromagnetic wafers 5262a, 5262b each have a radial slit 5265a, 5265b to prevent the buildup of eddy currents within the wafer due to the oscillating magnetic field produced by the primary inductor. Where the wafer has a circular cross section, the slit may extend inwardly diametrically from the circumference.

[0149] The magnetic shield 5264 is provided to prevent flux leakage into the surroundings. Preferably, the magnetic shield 5264 is also fabricated from a sheet of thin amorphous ferromagnetic material and may be adhered to the PCB by a third adhesive insulating layer 5265c.

[0150] It will be appreciated that a magnetic shield is of particular importance when the inductive receiver 5200 is mounted upon a conductive surface or a device containing conductive components. Thus, for example, when such an inductive power receiver 5200 is mounted upon an electrical device, such as a computer, mobile telephone or the like, the magnetic shield 5264 prevents magnetic flux from leaking into the metallic components of the electrical device and causing them to heat up.

[0151] Amorphous ferromagnetic sheets may have a thickness of around 20 microns. When laminated by a polymer laminate on both sides the overall thickness of the sheet is around 60 microns. Thus, in contradistinction to other ferrite elements used to guide magnetic flux in inductive systems, amorphous ferromagnetic materials may be used to fabricate an extremely thin magnetic guide 5260. A thin magnetic guide 5260 in turn allows the inductive power receiver 5200 to be flexible and unobtrusive. It will be appreciated that these considerations are very important in the design and manufacture of device mounted inductive receivers. Various methods of fabricating magnetic guiding elements from amorphous ferromagnetic material include, inter alia: printing, stamping, cutting, amorphous ferromagnetic microwire cloth and the like.

Power Transmission at a Non-resonant Frequency

[0152] The strength of an induced voltage in the secondary inductor of an inductive couple varies according to the oscillating frequency of the electrical potential provided to the primary inductor. The induced voltage is strongest when the oscillating frequency equals the resonant frequency of the system. The resonant frequency f_R depends upon the inductance L and the capacitance C of the system according to the equation $f_R = \frac{1}{2\pi\sqrt{LC}}$.

[0153] Known inductive power transfer systems typically transmit power at the resonant frequency of the inductive coupling. This can be difficult to maintain as the resonant frequency of the system may fluctuate during power transmission, for example in response to changing environmental conditions or variations in alignment between primary and secondary coils.

[0154] Inductive transfer systems designed to transmit at resonance therefore require tuning mechanisms for maintaining transmission at the resonant frequency of the system. Tuning may be

achieved by adjusting the driving frequency to seek resonance. For example, United States Patent No. 6,825,620, titled "Inductively coupled ballast circuit" to Kuennen et al. describes a resonance seeking ballast circuit for inductively providing power to a load. The ballast circuit includes an oscillator, a driver, a switching circuit, a resonant tank circuit and a current sensing circuit. The current sensing circuit provides a current feedback signal to the oscillator that is representative of the current in the resonant tank circuit. The current feedback signal drives the frequency of the ballast circuit causing the ballast circuit to seek resonance. The ballast circuit preferably includes a current limit circuit that is inductively coupled to the resonant tank circuit. The current limit circuit disables the ballast circuit when the current in the ballast circuit exceeds a predetermined threshold or falls outside a predetermined range.

[0155] Alternatively, tuning may be achieved by adjusting the characteristics of the inductive system. For example, United States Patent No. 7,212,414, titled "Adaptive inductive power supply" to Baarman describes a contactless power supply which has a dynamically configurable tank circuit powered by an inverter. The contactless power supply is inductively coupled to one or more loads. The inverter is connected to a DC power source. When loads are added or removed from the system, the contactless power supply is capable of modifying the resonant frequency of the tank circuit, the inverter frequency, the inverter duty cycle or the rail voltage of the DC power source.

[0156] Tuning mechanisms such as those described above are necessary in order to maintain transmission at resonance because resonant transmission is highly sensitive. At resonance small variations to the system result in large changes to the power transferred. A further problem associated with resonant transmission is the high transmission voltages involved. At high operating voltages, the capacitors and transistors in the circuit need to be relatively large.

[0157] Reference is now made to Fig. 6a showing a block diagram of the main elements of an inductive power transfer system 6100 adapted to transmit power at a non-resonant frequency. The inductive power transfer system 6100 consists of an inductive power outlet 6200 configured to provide power to a remote secondary unit 6300 according to another embodiment of the invention. The inductive power outlet 6200 includes a primary inductive coil 6220 wired to a power source 6240 via a driver 6230. The driver 6230 is configured to provide an oscillating driving voltage to the primary inductive coil 6220.

[0158] The secondary unit 6300 includes a secondary inductive coil 6320, wired to an electric load 6340, which is inductively coupled to the primary inductive coil 6220. The electric load 6340 draws power from the power source 6240. A communication channel 6120 may be provided between a transmitter 6122 associated with the secondary unit 6300 and a receiver 6124 associated with the inductive power outlet 6200. The communication channel 6120 may provide feedback signals S and the like to the driver 6230.

[0159] In some embodiments, a voltage peak detector 6140 is provided to detect large increases in the transmission voltage. As will be descried below the peak detector 6140 may be used to detect the removal of the secondary unit 6200, the introduction of power drains, short circuits or the like.

[0160] Fig. 6b is a graph showing how the amplitude of the operational voltage varies according to the transmission frequency. It is noted that the voltage is at its highest when the transmission frequency is equal to the resonant frequency f_R of the system, this maximum amplitude is known as the resonance peak 2. It is further noted that the slope of the graph is steepest in the regions 4a, 4b to either side of the resonance peak 2. Thus in inductive transfer systems, which operate at or around resonance, a small variation in frequency results in a large change in induced voltage. Similarly, a small change in the resonant frequency of the system results in a large change in the induced voltage. For this reason prior art inductive transfer systems are typically very sensitive to small fluctuations in environmental conditions or variations in alignment between the induction coils.

[0161] It is a particular feature of embodiments of the current invention that the driver 6230 (Fig. 6a) is configured and operable to transmit a driving voltage which oscillates at a transmission frequency which is substantially different from the resonant frequency of the inductive couple. Preferably the transmission frequency is selected to lie within one of the near-linear regions 6, 8 where the slope of the frequency-amplitude graph is less steep.

[0162] One advantage of this embodiment of the present invention may be demonstrated with reference now to Fig. 6c. A schematic diagram is shown representing a laptop computer 6340 drawing power from an inductive power outlet 6200 via a secondary power receiving unit 6300. The

power receiving unit 6300 includes a secondary inductive coil 6320 which is aligned to a primary inductive coil 6220 in the inductive power outlet 6200. Any lateral displacement of the secondary power receiving unit 6300 changes the alignment between the secondary inductive coil 6320 to the primary inductive coil 6220. As a result of the changing alignment, the combined inductance of the coil pair changes which in turn changes the resonant frequency of the system.

[0163] If the inductive power outlet 6200 transmits power at the resonant frequency of the system, even a small lateral movement would reduce significantly the amplitude of the induced voltage. In contradistinction, according to embodiments of the present invention, the inductive power outlet 6200 transmits power at a frequency in one of the regions 6, 8 to either side of the resonance peak 2 (Fig. 6b) where the slope of the resonance graph is much shallower. Consequently, the system has a much larger tolerance of variations such as lateral movement.

[0164] Another advantage of non-resonant transmission is that the transmission frequency may be used to regulate power transfer. In known inductive power transfer systems, power is typically regulated by altering the duty cycle of the transmission voltage provided by the driver. Thus, it will be appreciated that when the transmission frequency is not equal to the resonance frequency of the system, the driver 6230 may be configured to adjust the transmission frequency in order to regulate the power transfer.

[0165] Referring back to Fig. 6b, the frequency of transmission is selected to be in the approximately linear region 8 of the curve between a lower frequency value of f_L and an upper frequency value of f_U. A transmission frequency f_t, higher than the resonant frequency f_R of the system, produces an induced voltage of V_t. The induced voltage can be increased by reducing the transmission frequency and can be reduced by increasing the transmission frequency. For example, an increase in transmission frequency of δf produces a decrease in induced voltage of δV.

[0166] In some embodiments, a communication channel 6120 (Fig. 6a) is provided between the secondary unit 6300 and the inductive power outlet 6200. Such a communication channel 6120, may be used to communicate required operating parameters which, for example, may indicate the transmission frequency required by the electric load 6340 to the driver 6230.

[0167] Various transmitters 6122 and receivers 6124 may be used with the communication channel 6120. Where, as is often the case for inductive systems, the primary and secondary coils 6220, 6320 are galvanically isolated for example, optocouplers may have a light emitting diode serving as a transmitter which sends encoded optical signals over short distances to a photo-transistor which serves as a receiver. Optocouplers typically need to be aligned such that there is a line-of-sight between transmitter and receiver. In systems where alignment between the transmitter and receiver may be difficult to achieve, optocoupling may be inappropriate and alternative systems may be preferred such as ultrasonic signals transmitted by piezoelectric elements or radio signals such as Bluetooth, WiFi and the like. Alternatively the primary and secondary coils 6220, 6320 may themselves serve as the transmitter 6122 and receiver 6124.

[0168] In certain embodiments, an optical transmitter, such as a light emitting diode (LED) for example, is incorporated within the secondary unit 6300 and is configured and operable to transmit electromagnetic radiation of a type and intensity capable of penetrating the casings of both the secondary unit 6300, and the power outlet 6200. An optical receiver, such as a photodiode, a phototransistor, a light dependent resistors of the like, is incorporated within the power outlet 6200 for receiving the electromagnetic radiation.

[0169] The communication channel 6120 may further provide a feedback signal during power transmission. The feedback transmission may communicate required or monitored operating parameters of the electric load 6240 such as: required operating voltage, current, temperature or power for the electric load 6240; the measured voltage, current, temperature or power supplied to the electric load 6240 during operation; the measured voltage, current, temperature or power received by the electric load 6240 during operation and the like.

[0170] In some embodiments, a microcontroller in the driver 6230 may use such feedback parameters to calculate the required transmission frequency and to adjust the driver accordingly. Alternatively, simple feedback signals may be provided indicating whether more or less power is required.

[0171] One example of a power regulation method using simple feedback signals is shown in the flowchart of Fig. 6d. The method involves the following steps: (a) The driver 6230 provides an

oscillating voltage at a transmission frequency f_t which is higher than the resonant frequency f_R of the system.; (b) A secondary voltage is induced in the secondary coil 6320; (c) A power monitor in the secondary unit 6300, monitors the power received by the electric load 6340; (d) If the power received by the electric load 6340 lies within a predetermined range then no action is taken. If the power received by the electric load E340 is below the predetermined range, then a feedback signal of a first type S_a is sent to the driver. If the power received by the electric load 6340 is above the predetermined range, then a feedback signal of a second type S_b is sent to the driver; (e) A feedback signal is received by the driver 6230; (f) If the received feedback signal is of the first type S_a, then the transmission frequency is increased by an incremental value $+\delta f_1$. If the received feedback signal is of the second type S_b, then the transmission frequency is decreased by an incremental value $-\delta f_2$.

[0172] It is noted that by using the power regulation method described above, when the power received by the load is too high, a series of feedback signals of the first type S_a will be transmitted until the power is reduced into the acceptable range. Likewise when the power received by the load is too low, a series of feedback signals of the second type S_b will be transmitted until the power is increased into the acceptable range. It is noted that the positive incremental value δf_1 may be greater than, less than or equal to the negative incremental value δf_2.

[0173] Alternatively, other power regulation methods using frequency adjustment may be used. For example, in alternative embodiments, the operating parameters of the electric load may be monitored and their values may be transmitted to the power outlet via the communications channel 6120. A processor in the power outlet may then calculate the required transmission frequency directly.

[0174] The method described hereabove, refers to a non-resonant transmission frequency lying within the linear region 8 (Fig. 6b), higher than the resonant peak 2. It will be appreciated however that in alternative embodiments frequency controlled power regulation may be achieved when the transmission frequency lies in the lower linear region 6 of the resonance curve. Nevertheless, as explained below, for certain embodiments, the selection of transmission frequencies in the higher linear 8 may be preferred.

[0175] As described above, the resonant frequency f_R of an inductive couple is given by the formula $f_R = \frac{1}{2\pi\sqrt{LC}}$, where L is the inductance of the system and C is the capacitance of the system. Thus any decrease in either the inductance L or the capacitance C of the system thereby increases its resonant frequency.

[0176] In inductive power outlets transmitting at frequencies above the normal resonant frequency of the system, an increase in resonant frequency of the system causes a large increase in the transmission voltage. In preferred embodiments, a peak detector 6140 (Fig. 1) is be provided to monitor the transmission voltage of the power outlet 6200 and is configured to detect large increases in the transmission voltage indicating an increase in resonant frequency. Such increases in transmission voltage may be indicative of power drains, short circuits, removal of the secondary unit or the like.

[0177] As an example of the use of a peak detector reference is again made to Fig. 6c. It will be appreciated that in a desktop environment, conductive bodies such as a paper clip, metal rule, the metal casing a stapler, a hole-punch or any metallic objects may be introduced between the inductive power outlet 6200 and the secondary power receiving unit 6300. The oscillating magnetic field produced by the primary coil 6220 would then produce eddy currents in the conductive body heating it and thereby draining power from the primary coil 6220. Such a power drain may be wasteful and/or dangerous.

[0178] Power drains such as described above reduce the inductance L of the system. The inductance L may also be reduced by the removal of the secondary coil 6220, a short circuit or the like. A peak detector 6140, wired to the inductive power outlet, would detect any of these scenarios as a large increase in transmission voltage. Preferably, the power transfer system may be further configured to shut down, issue a warning or otherwise protect the user and the system in the event that the peak detector 6140 detects such an increase in transmission voltage.

[0179] Fig. 6e is a circuit diagram of an inductive power outlet 6200 and a secondary unit 6300. The secondary unit 6300 comprises a secondary coil 6320 wired to an electric load 6340 via a rectifier 6330.

[0180] The inductive power outlet 6200 comprises a primary coil 6220 driven by a half-bridge converter 6230 connected to a power source 6240. The half-bridge converter 6230 is configured to drive the primary coil 6220 at a frequency higher than the resonant frequency of the system and a peak detector 6140 is configured to detect increases in the transmission voltage.

[0181] Although only a half-bridge converter is represented in Fig. E6, it is noted that other possible driving circuits include: a DC-to-DC converter, an AC-to-DC converter, an AC-to-AC converter, a flyback transformer, a full-bridge converter, a flyback converter or a forward converter for example.

[0182] Thus, by using a transmission voltage oscillating at a frequency different from the resonant frequency of the system, the inductive transfer system has a higher tolerance to environmental fluctuations and variations in inductive coil alignment than other transfer systems and the frequency may be used to regulate power transfer. Moreover, when the transmission frequency is higher than the resonant frequency of the system, a peak detector may be used to indicate hazards.

Inductive Communication Channel

[0183] United States Patent No. 5,455,466 titled, "Inductive coupling system for power and data transfer" to Terry J. Parks and David S. Register describes a system for inductively coupling power and data to a portable electronic device. The portable device, such as a personal digital assistant (PDA), is powered or recharged via an inductive link between the device and a support unit. The same inductive link is also used to transfer data signals between the device and a second electronic device, such as a conventional desktop computer. The support unit includes a primary winding of a transformer, a power amplifier and a modulator. The portable device includes a secondary winding connected in parallel with the input of a rectifier, the output of which is connected to a battery charging circuit, and to a modem, which is further connected to the device microprocessor. Placement of the device on the support unit affects the inductive coupling when the primary and secondary windings are in proximity to one another. Parks' system is thus directed to providing a data channel for synchronizing two data storage devices for example a PDA and a computer.

[0184] In Parks' system data transfer from the primary winding to the secondary winding may be provided by modulating the power signal. This requires a separate data signal to be transmitted by the secondary winding which is induced in the primary winding. Power transmission must therefore be interrupted in order to transmit data signals from the secondary winding to the primary winding. As a result, Parks' system does not offer any solution to providing a feedback signal for the regulation of uninterrupted inductive power transfer to an electric load.

[0185] Reference is now made to Fig. 7a showing a block diagram of the main elements of an inductive power transfer system 7100 consisting of an inductive power outlet 7200 configured to provide power to a remote secondary unit 7300. The inductive power transfer system 7100 includes an inductive communication channel 7120 according to a further embodiment of the present invention. The communication channel 7120 is configured to produce an output signal S_{out} in the power outlet 7200 when an input signal S_{in} is provided by the secondary unit 7300 without interrupting the inductive power transfer from the outlet 7200 to the secondary unit 7300.

[0186] The inductive power outlet 7200 includes a primary inductive coil 7220 wired to a power source 7240 via a driver 7230. The driver 7230 is configured to provide an oscillating driving voltage to the primary inductive coil 7220, typically at a voltage transmission frequency f_t which is higher than the resonant frequency f_R of the system.

[0187] The secondary unit 7300 includes a secondary inductive coil 7320, wired to an electric load 7340, which is inductively coupled to the primary inductive coil 7220. The electric load 7340 draws power from the power source 7240. Where the electric load 7340 requires a direct current supply, for example a charging device for an electrochemical cell or the like, a rectifier 7330 may be provided to rectify the alternating current signal induced in the secondary coil 7320.

[0188] An inductive communication channel 7120 is provided for transferring signals from the secondary inductive coil 7320 to the primary inductive coil 7220 concurrently with uninterrupted inductive power transfer from the primary inductive coil 7220 to the secondary inductive coil 7320. The communication channel 7120 may provide feedback signals to the driver 7230.

[0189] The inductive communication channel 7120 includes a transmission circuit 7122 and a receiving circuit 7124. The transmission circuit 7122 is wired to the secondary coil 7320, optionally via a rectifier 7330, and the receiving circuit 7124 is wired to the primary coil 7220.

[0190] The signal transmission circuit 7122 includes at least one electrical element 7126, selected such that when it is connected to the secondary coil 7320, the resonant frequency f_R of the system increases. The transmission circuit 7122 is configured to selectively connect the electrical element 7126 to the secondary coil 7320.

[0191] As known, the resonant frequency f_R of an inductive couple is given by the formula $f_R = \frac{1}{2\pi\sqrt{LC}}$, where L is the inductance of the system and C is the capacitance of the system. Thus any decrease in either the inductance L or the capacitance C increases the resonant frequency of the system. The electrical element 7126 may be a low resistance for example, typically the resistance of the electrical element 7126 is under 50 ohms and preferably about 1 ohm.

[0192] The signal receiving circuit 7124 may include a voltage peak detector 7128 configured to detect large increases in the transmission voltage. In systems where the voltage transmission frequency f_t is higher than the resonant frequency f_R of the system, such large increases in transmission voltage may be caused by an increase in the resonant frequency f_R thereby indicating that the electrical element 7126 has been connected to the secondary coil 7320. Thus the transmission circuit 7122 may be used to send a signal pulse to the receiving circuit 7124 and a coded signal may be constructed from such pulses.

[0193] According to some embodiments, the transmission circuit 7122 may also include a modulator (not shown) for modulating a bit-rate signal with the input signal S_{in}. The electrical element 7126 may then be connected to the secondary inductive coil 7320 according to the modulated signal. The receiving circuit 7124 may include a demodulator (not shown) for demodulating the modulated signal. For example the voltage peak detector 7128 may be connected to a correlator for cross-correlating the amplitude of the primary voltage with the bit-rate signal thereby producing the output signal S_{out}.

[0194] In other embodiments, a plurality of electrical elements 7126 may be provided which may be selectively connected to induce a plurality of voltage peaks of varying sizes in the amplitude of the primary voltage. The size of the voltage peak detected by the peak detector 7128 may be used to transfer multiple signals.

[0195] Fig. 7b is a graph showing how the amplitude of the operational voltage varies according to the transmission frequency. It is noted that the voltage is at its highest when the transmission frequency is equal to the resonant frequency f_R of the system, this maximum amplitude is known as the resonance peak 2. If the resonant frequency f_R of the system increases, a new resonance peak 2' is produced.

[0196] According to an exemplary embodiment of the invention, an inductive power transfer system 7100 operates at a given transmission frequency f_t which is higher than the resonant frequency f_R of the system. The normal operating voltage V_t is monitored by the voltage peak detector 7128. When the electric element 7126 is connected to the secondary inductive coil 7320 the resonant frequency of the system increases. Therefore, the operating voltage increases to a higher value V_t'. This increase is detected by the voltage peak detector 7128.

[0197] The present invention allows data signals to be transferred from the secondary coil 7320 to the primary coil 7220 concurrently with inductive transfer of power from the primary coil 7220 to the secondary coil 7320. Consequently, the signal transfer system may be used to provide feedback signals for real time power regulation. This is in contradistinction to prior art inductive signal transfer systems, such as the system described in United States Patent No. 5,455,466 titled, "Inductive coupling system for power and data transfer" to Terry J. Parks and David S. Register, in which a separate data signal is supplied to the secondary inductive coil such that a voltage is induced in the primary coil.

[0198] Fig. 7c shows an exemplary circuit diagram of an inductive power outlet 7200 and a secondary unit 7300, according to another embodiment of the invention. An inductive feedback channel 7120 is provided for transferring signals between the coils concurrently with uninterrupted inductive power transfer.

[0199] The inductive power outlet 7200 comprises a primary coil 7220 driven by a half-bridge converter 7230 connected to a power source 7240. The half-bridge converter 7230 is configured to drive the primary coil 7220 at a frequency higher than the resonant frequency of the system. The secondary unit 7300 comprises a secondary coil 7320 wired to the input terminals T_1, T_2 of a rectifier 7330, and an electric load 7340 wired to the output terminals T_3, T_4 of the rectifier 7330.

[0200] Although only a half-bridge converter 7230 is represented in the inductive power outlet 7200 of Fig. 7c, it is noted that other driving circuits could be used. These include: a DC-to-DC converter, an AC-to-DC converter, an AC-to-AC converter, a flyback transformer, a full-bridge converter, a flyback converter or a forward converter for example.

[0201] The inductive feedback channel 7120 comprises a transmission circuit 7122, in the secondary unit 7300 and a receiving circuit 7124 in the inductive power outlet 7200. The transmission circuit 7122 comprises an electrical resistor 7126 connected to the rectifier 7330 via a power MOSFET switch 7125. A modulator 7123 may provide an input signal S_{in} to the power MOSFET 7125.

[0202] It is noted that in this embodiment the transmission circuit 7122 is wired to one input terminal T_1 and one output terminal T_3 of the rectifier 7330. This configuration is particularly advantageous as, even when the transmission circuit 7122 is connected, the resistor 7126 only draws power from the system during one half of the AC cycle, thereby significantly reducing power loss.

[0203] The receiving circuit 7124 includes a voltage peak detector 7128 that is configured to detect increases in the transmission voltage, and a demodulator 7129 for producing an output signal S_{out}.

[0204] With reference now to Fig. 7d, a flowchart is presented showing the main steps in a method for transferring a signal from the secondary inductive coil to a primary inductive coil of an inductive power transfer system. The method includes the following steps:

[0205] Step (a) – connecting the primary inductive coil to a voltage monitor for monitoring the amplitude of a primary voltage across the primary coil;

[0206] Step (b) – connecting the secondary inductive coil to a transmission circuit for connecting an electric element to the secondary inductive coil thereby increasing the resonant frequency of the inductive power transfer system;

[0207] Step (c) – providing an oscillating voltage to the primary inductive coil at an initial transmission frequency higher than the resonant frequency thereby inducing a voltage in the secondary inductive coil;

[0208] Step (d) – using the transmission circuit to modulate a bit-rate signal with the input signal to create a modulated signal and connecting the electrical element to the secondary inductive coil intermittently according to the modulated signal;

[0209] Step (e) – using the voltage monitor to cross-correlate the amplitude of the primary voltage with the bit-rate signal for producing an output signal.

[0210] The inductive feedback channel 7120 may be used for transferring data, such as data pertaining to any or all of the following: the required operating voltage, current, temperature or power for the electric load 7240; the measured voltage, current, temperature or power supplied to the electric load 7240 during operation; the measured voltage, current, temperature or power received by the electric load 7240 during operation and the like; identification data for the user, electronic device and such like; a release signal of a transmission-key for releasing a transmission-lock.

[0211] Therefore, the inductive communication channel may be used to transfer a feedback signal from the secondary inductive coil to the primary inductive coil for regulating power transfer across an inductive power coupling.

[0212] For example the system may be configured to transfer two signals with the driver being configured to decrease the transmission power when a first signal is received, and to increase the transmission power when a second signal is received.

[0213] Power may be regulated by altering the duty cycle of the transmission voltage provided by the driver. Furthermore, the driver 7230 may be configured to adjust the transmission frequency in order to regulate the power transfer, as described hereinabove. Accordingly, the driver may be configured to adjust the transmission frequency in response to feedback signals. The

transmission frequency may be increased when the first signal is received thereby decreasing the operating voltage, and the transmission frequency may be decreased when the second signal is received, thereby increasing the operating voltage.

[0214] Thus a communication channel is provided for regulating power transfer and/or for transmitting data signals from the secondary coil to the primary coil of an inductive couple while power is being transferred.

[0215] It will be apparent from the above description that various embodiment of the present invention disclose significant advantages enabling the efficient, safe and unobtrusive inductive transfer of power. It is further noted that, in combination, these advantages allow an inductive power transmission system to become a practical tool suitable for a variety of applications.

[0216] The scope of the present invention is defined by the appended claims and includes both combinations and sub combinations of the various features described hereinabove as well as variations and modifications thereof, which would occur to persons skilled in the art upon reading the foregoing description.

[0217] In the claims, the word "comprise", and variations thereof such as "comprises", "comprising" and the like indicate that the components listed are included, but not generally to the exclusion of other components.

[0218] While exemplary embodiments are described above, it is not intended that these embodiments describe all possible forms of the invention. Rather, the words used in the specification are words of description rather than limitation, and it is understood that various changes may be made without departing from the spirit and scope of the invention. Additionally, the features of various implementing embodiments may be combined to form further embodiments of the invention.

WHAT IS CLAIMED IS:

1. An inductive power transfer system comprising at least one inductive power outlet operable to transfer power to an inductive power receiver, said inductive power outlet comprising:

a platform for supporting said inductive power receiver;

at least one primary inductive coil embedded in said platform, said primary inductive coil;

a driver wired to said primary inductive coil and operable to provide a driving voltage across said primary inductive coil;

wherein:

said primary inductive coil is configured to form an inductive couple having a characteristic resonant frequency with at least one secondary inductive coil wired to an electric load, said secondary inductive coil associated with said inductive power receiver; and

said driving voltage oscillates at a transmission frequency significantly different from said characteristic resonant frequency of said inductive couple.

2. The system of claim 1 wherein said driver comprises a switching unit for intermittently connecting said primary inductive coil to said power supply.

3. The system of claim 1 wherein said transmission frequency lies within a range in which induced voltage varies approximately linearly with frequency.

4. The system of claim 1 said inductive power outlet comprising a signal detector adapted to detect a first signal and a second signal, and said driver is configured to:

increase said transmission frequency when said first signal is detected by the detector, and

decrease said transmission frequency when said second signal is detected by the detector.

5. The system of claim 1 said driver being configured to adjust said transmission frequency in response to feedback signals.

6. The system of claim 5 wherein said feedback signals carry data pertaining to the operational parameters of said electric load.

7. The system of claim 6 wherein said operational parameters are selected from the group consisting of:

required operating voltage for said electric load;
required operating current for said electric load;
required operating temperature for said electric load;
required operating power for said electric load;
measured operating voltage for said electric load;
measured operating current for said electric load;
measured operating temperature for said electric load;
measured operating power for said electric load;
power delivered to said primary inductive coil;
power received by said secondary inductive coil, and
a user identification code.

8. The system of claim 4 wherein said detector is selected from the list comprising optical detectors, radio receivers, audio detectors and voltage peak detectors.

9. The system of claim 1 wherein said driver further comprises a voltage monitor for monitoring the amplitude of a primary voltage across said primary coil.

10. The system of claim 9 wherein said voltage monitor is configured to detect significant increases in primary voltage.

11. The system of claim 1 comprising a power converter selected from the group comprising: a transformer, a DC-to-DC converter, an AC-to-DC converter, an AC-to-AC converter,

a flyback transformer, a flyback converter, a full-bridge converter, a half-bridge converter and a forward converter.

12. The system of claim 1 incorporated into at least one application selected from a group consisting of: inductive chargers, inductive power adaptors, power tools, kitchen appliances, bathroom appliances, computers, media players, office equipment, implanted devices, pace makers, trackers and RFID tags.

ABSTRACT

A transmission-guard is disclosed for preventing an inductive power outlet from transmitting power in the absence of an inductive power receiver. A transmission lock is associated with an inductive power outlet and a transmission key is associated with an inductive power receiver. The transmission lock is configured to prevent a primary inductor from connecting to the power supply unless triggered by a release signal via the transmission key

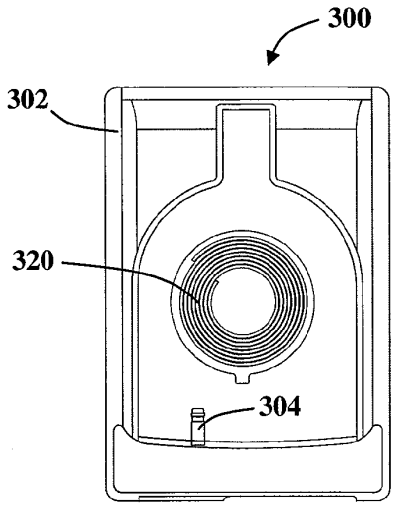

300
302
320
304

Fig. 1b

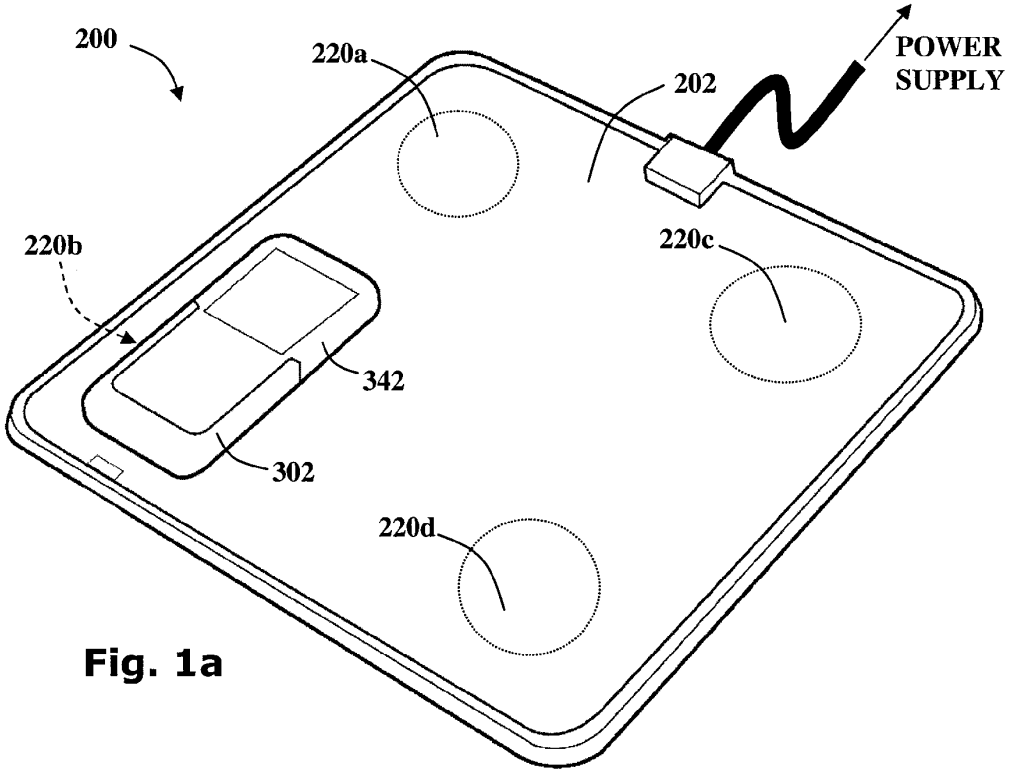

200
220a
202
POWER
SUPPLY
220b
220c
342
302
220d

Fig. 1a

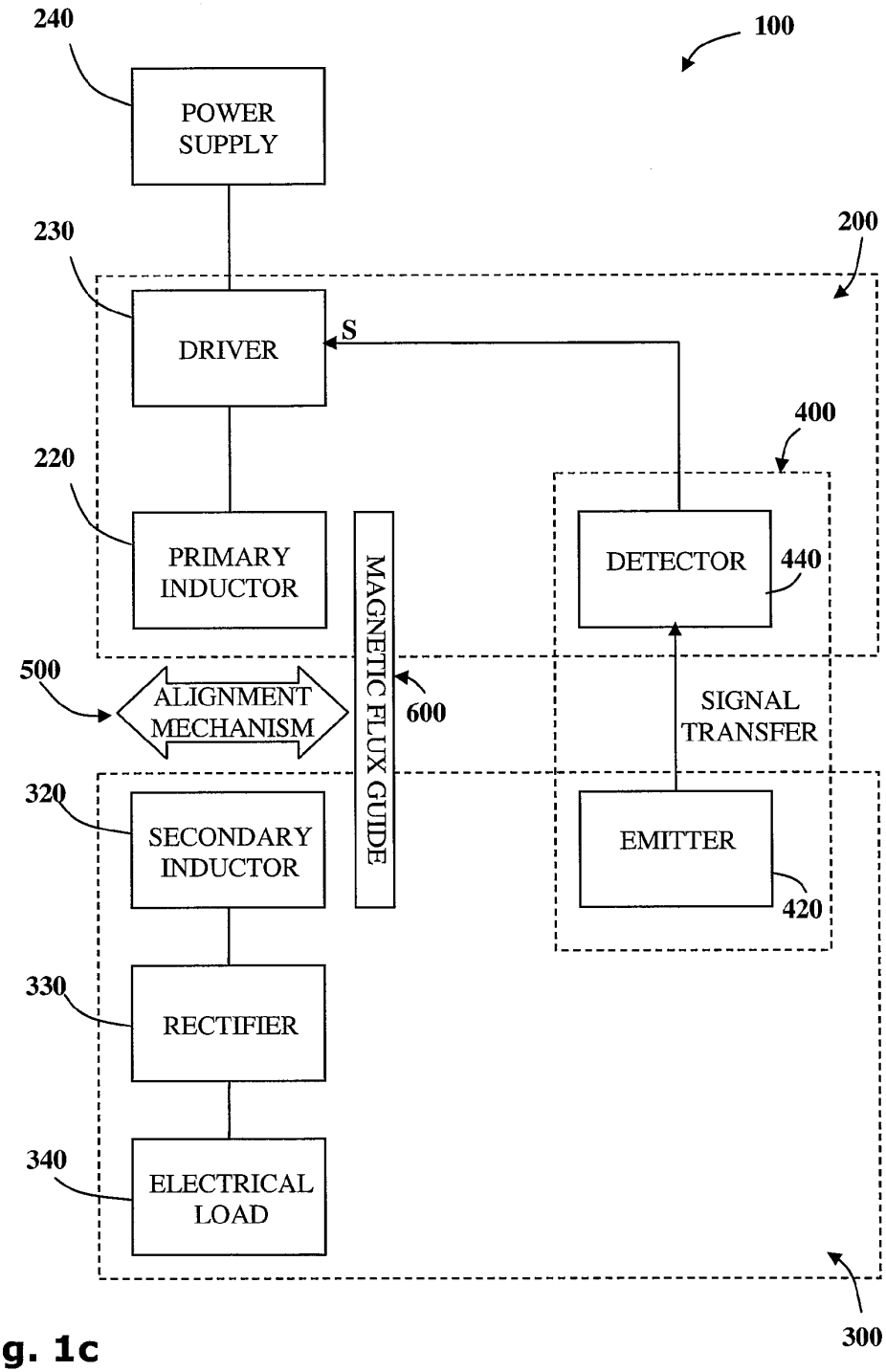

240
100
POWER SUPPLY
230
200
DRIVER
S
400
220
PRIMARY INDUCTOR
MAGNETIC FLUX GUIDE
DETECTOR
440
500
ALIGNMENT MECHANISM
600
SIGNAL TRANSFER
320
SECONDARY INDUCTOR
EMITTER
420
330
RECTIFIER
340
ELECTRICAL LOAD
300

Fig. 1c

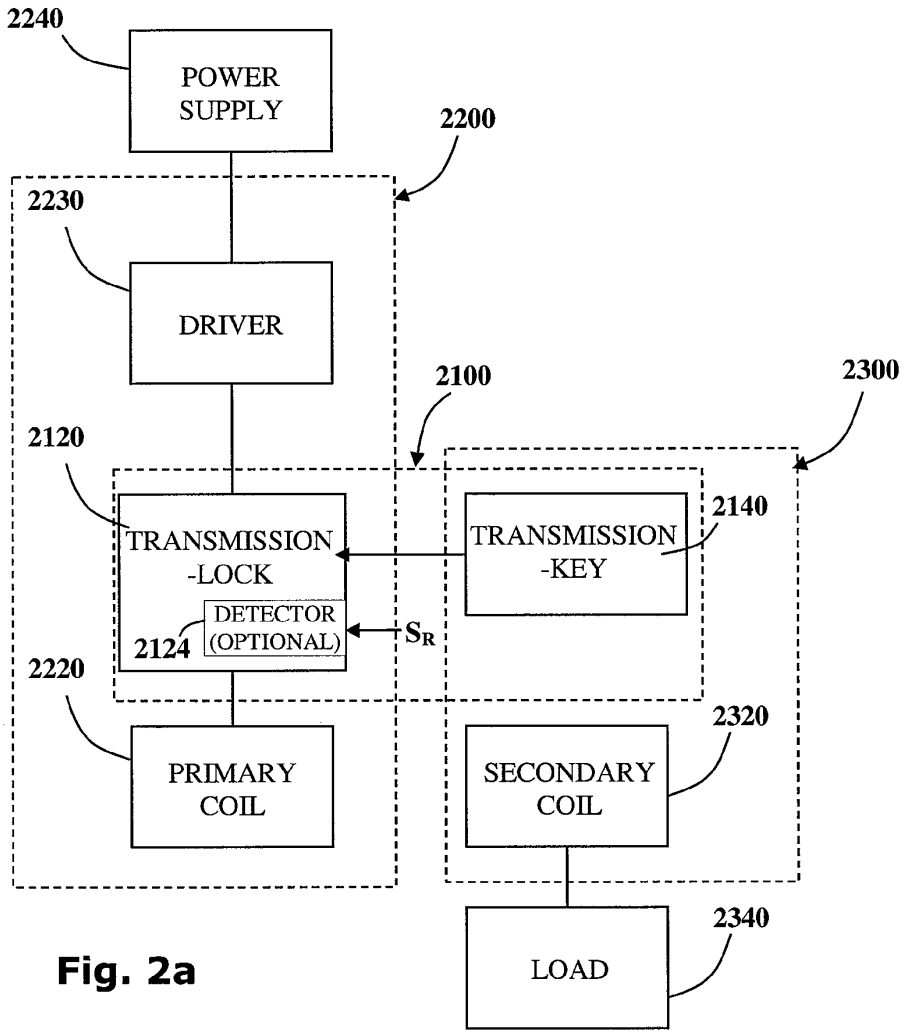

2240
POWER SUPPLY
2200
2230
DRIVER
2100
2300
2120
TRANSMISSION -LOCK
2140
TRANSMISSION -KEY
DETECTOR (OPTIONAL)
2124
S_R
2220
2320
PRIMARY COIL
SECONDARY COIL
2340
LOAD

Fig. 2a

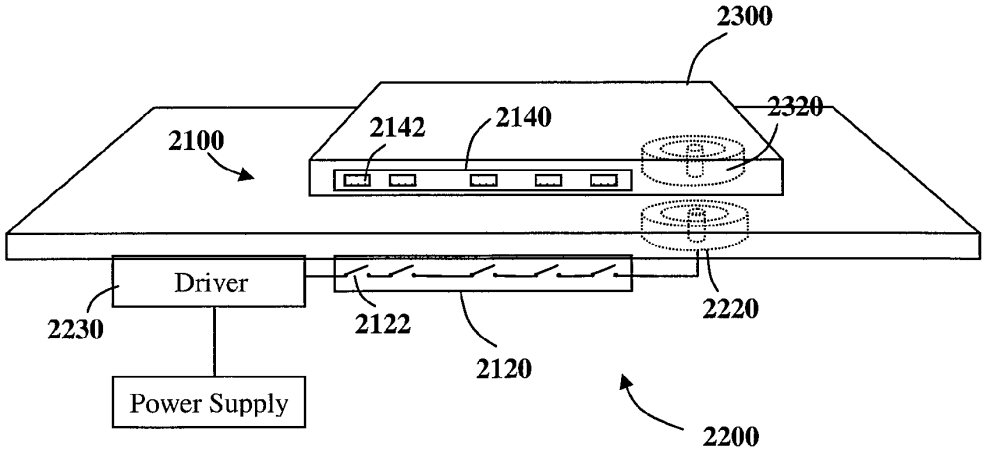

2300
2320
2142
2140
2100
Driver
2230
2122
2220
2120
Power Supply
2200

Fig. 2b

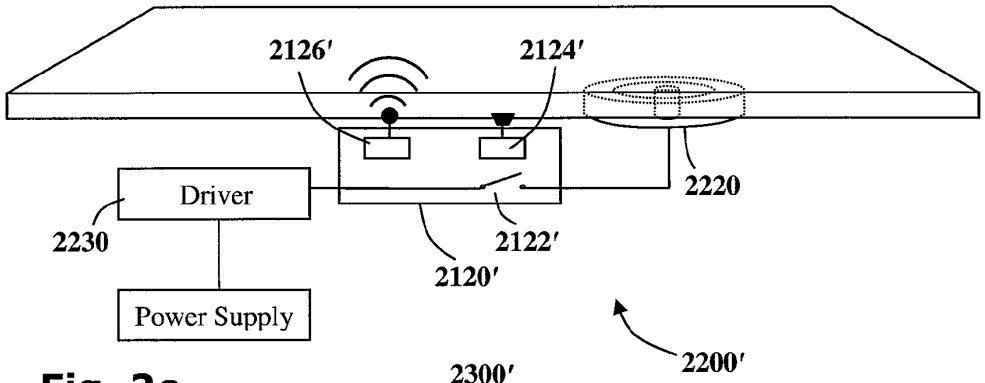


Fig. 2c

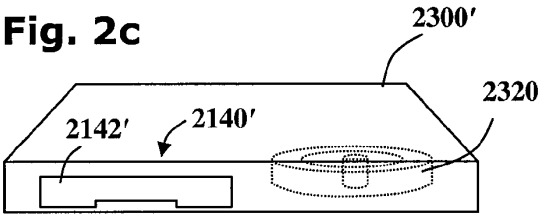


Fig. 2d

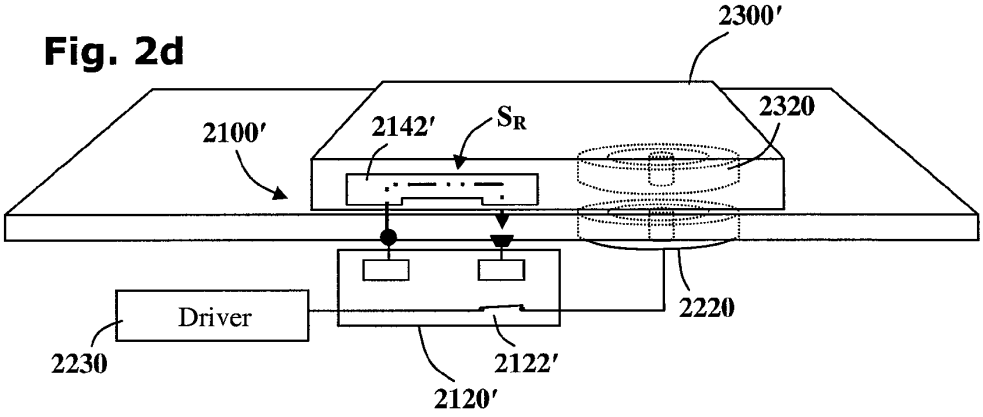


Fig. 2e

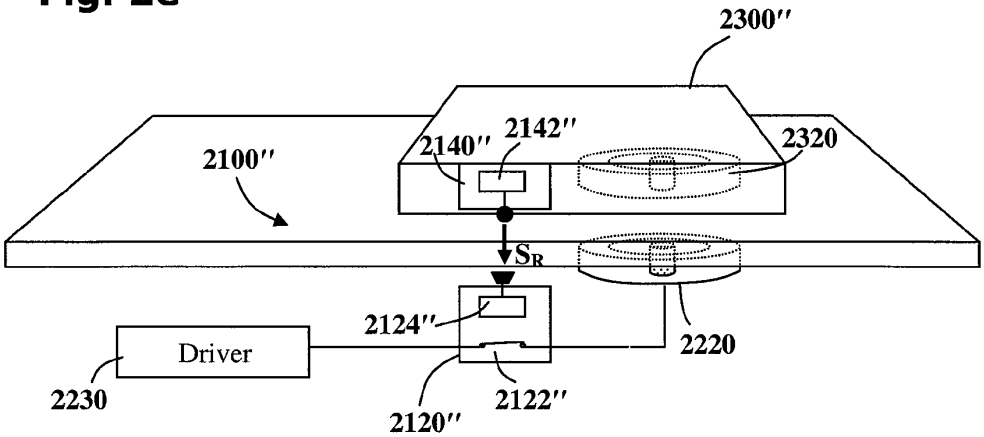


Fig. 2f

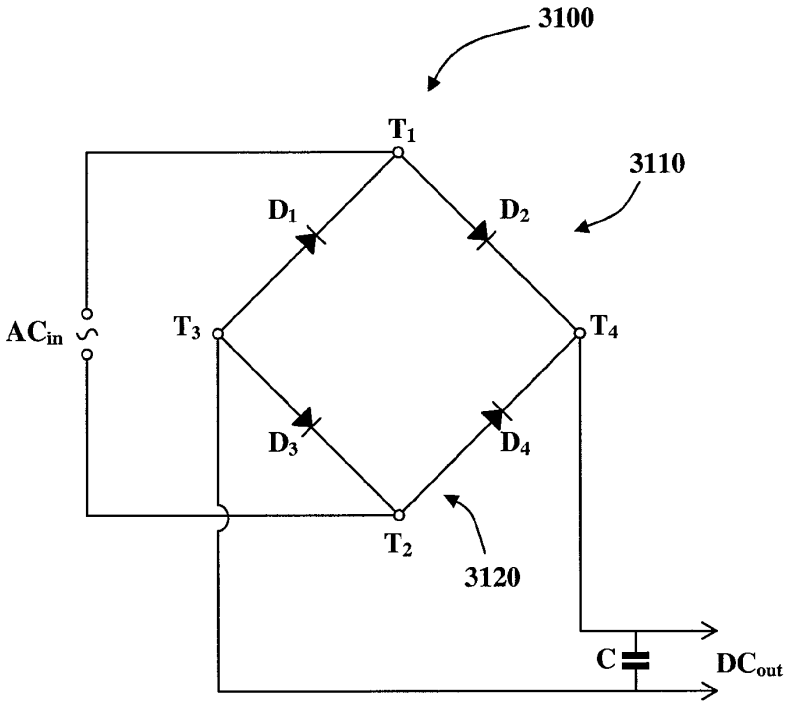


Fig. 3a PRIOR ART

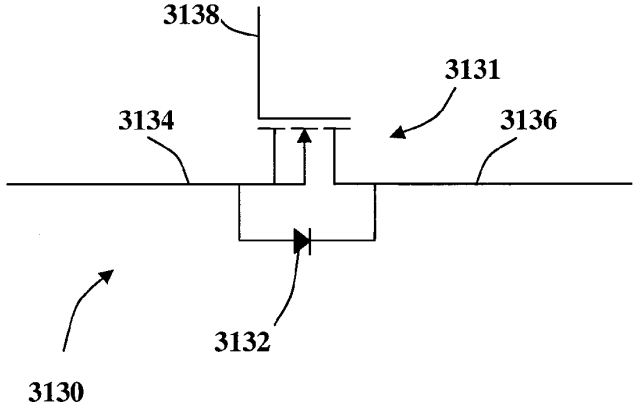


Fig. 3b PRIOR ART

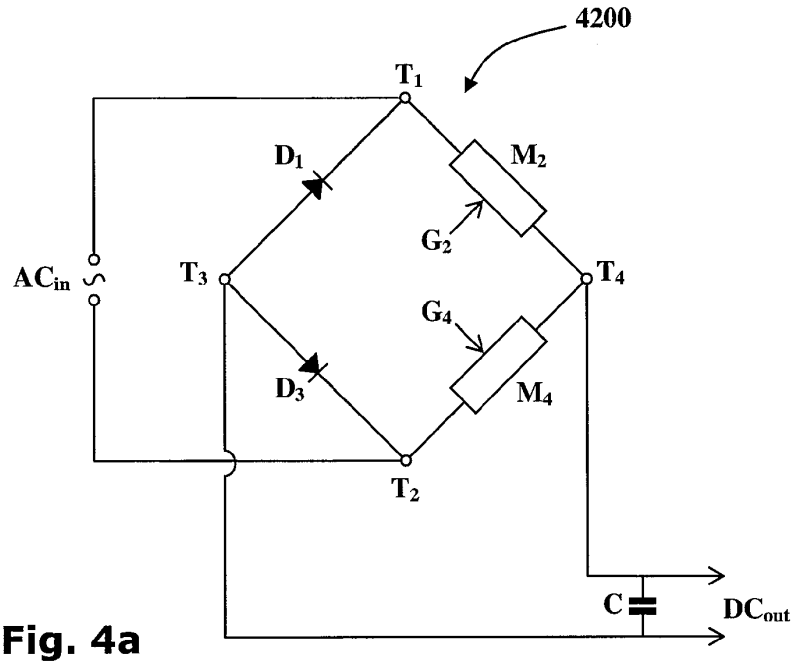

4200
T1
D1
M2
G2
ACin
T3
T4
G4
D3
M4
T2
C
DCout

Fig. 4a

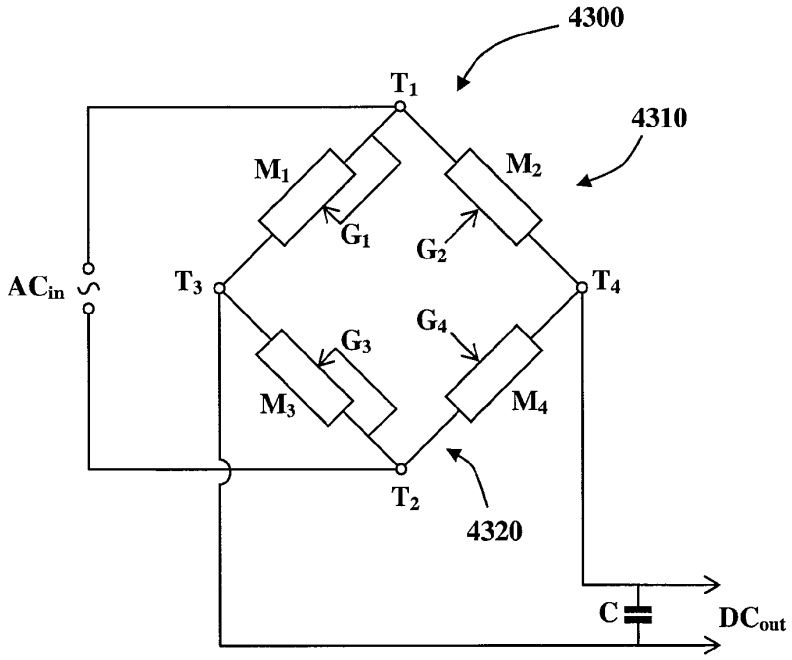

4300
T1
4310
M1
M2
G1
G2
ACin
T3
T4
G4
G3
M3
M4
T2
4320
C
DCout

Fig. 4b

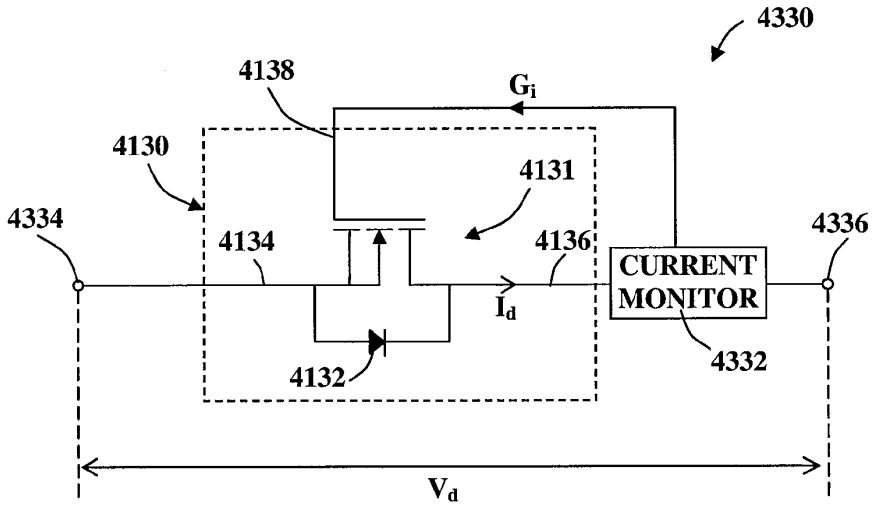

4330
4138
G_i
4130
4131
4334
4134
4136
4336
CURRENT MONITOR
I_d
4132
4332
V_d

Fig. 4c

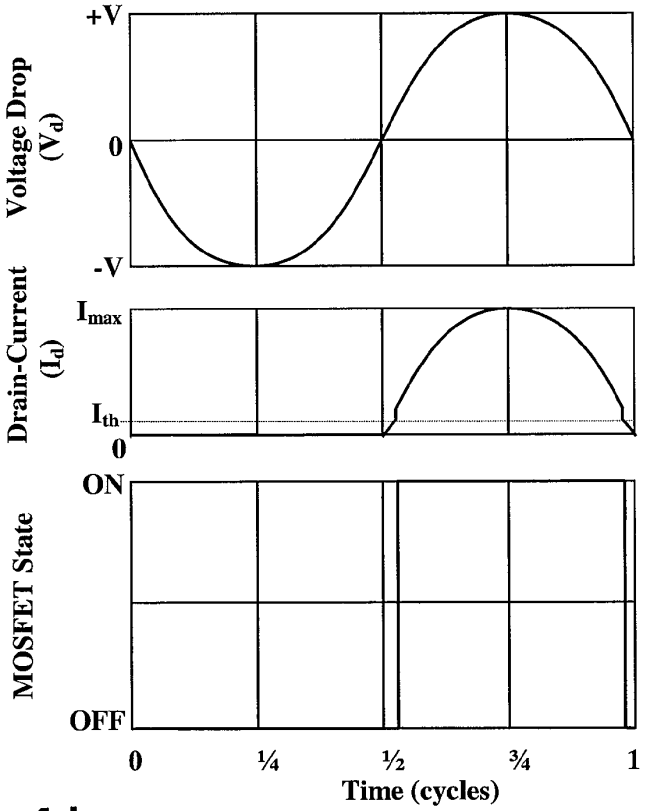

+V
Voltage Drop (V_d)
0
-V
I_{max}
Drain-Current (I_d)
I_{th}
0
ON
MOSFET State
OFF
0
¼
½
¾
1
Time (cycles)

Fig. 4d

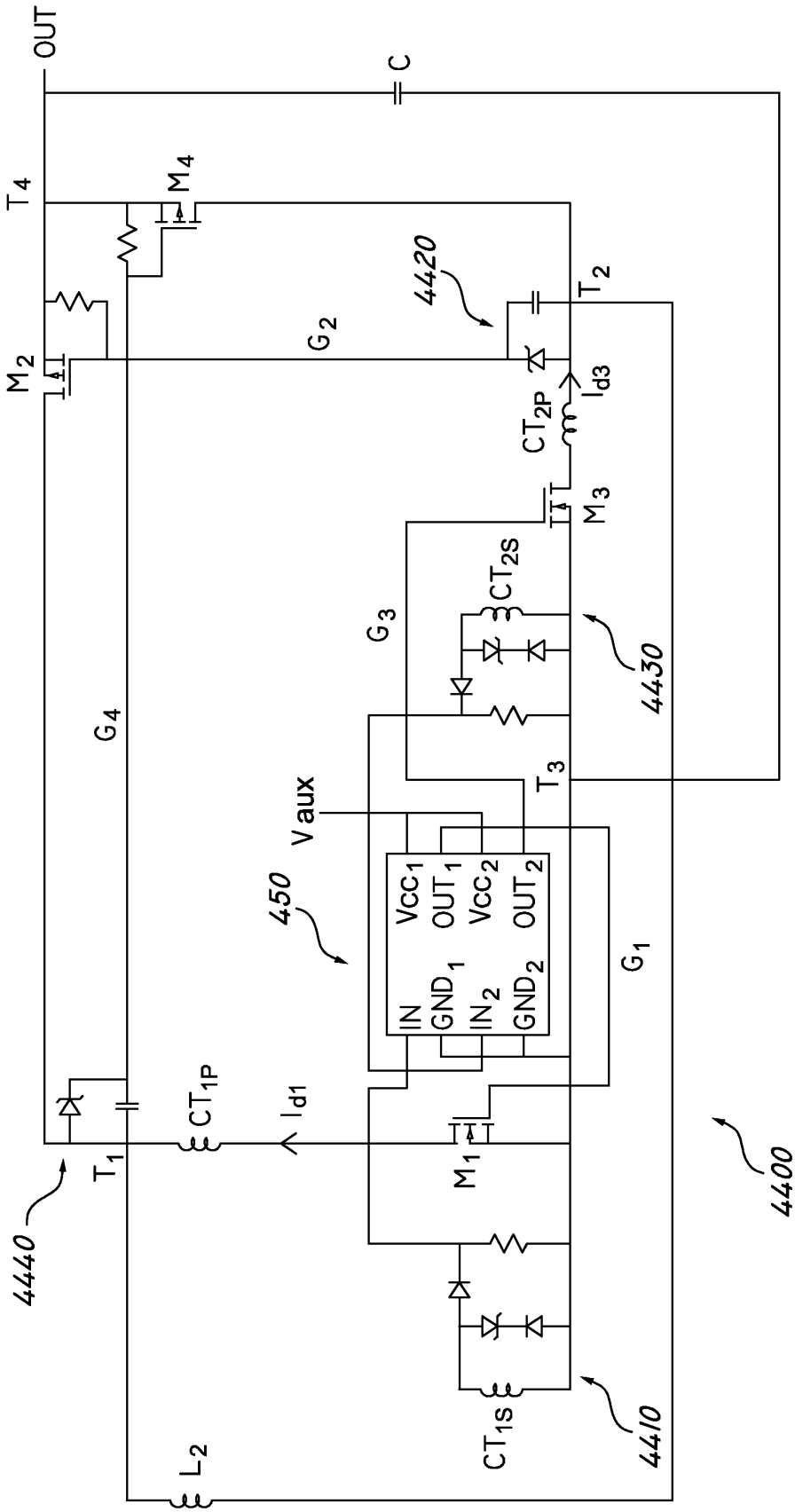

OUT
C
T4
M4
4420
T2
M2
G2
Id3
CT2P
M3
CT2S
G3
4430
G4
T3
V aux
450
Vcc1
OUT1
Vcc2
OUT2
IN
GND1
IN2
GND2
G1
CT1P
Id1
T1
M1
4400
4440
CT1S
4410
L2

Fig. 4e

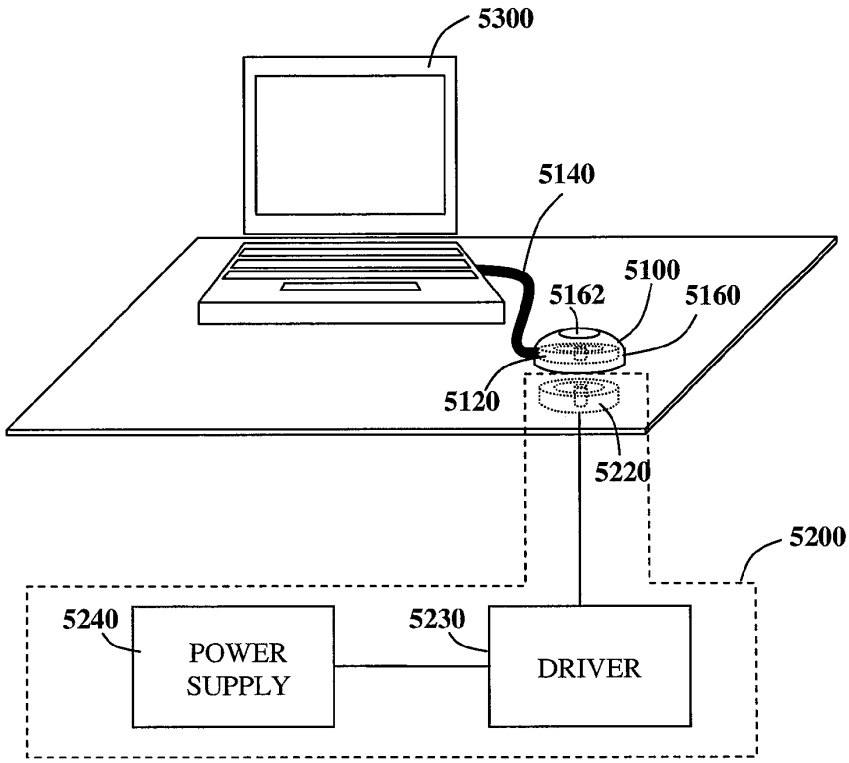

5300
5140
5100
5162
5160
5120
5220
5200
5240
POWER SUPPLY
5230
DRIVER

Fig. 5a

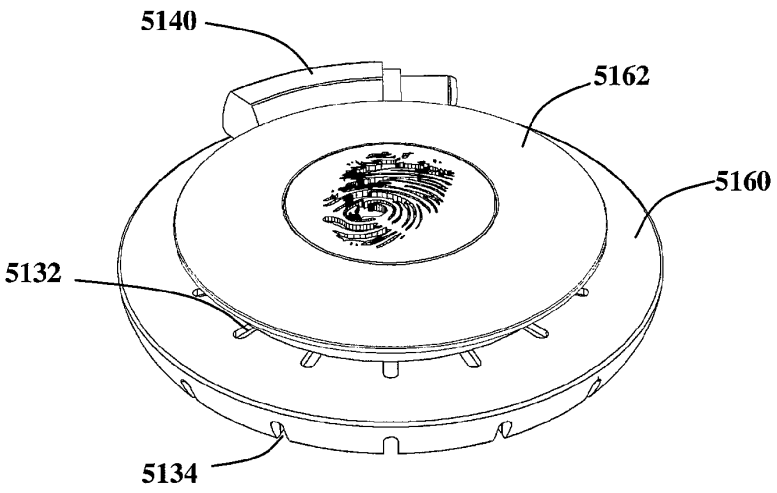

5140
5162
5160
5132
5134

Fig. 5b

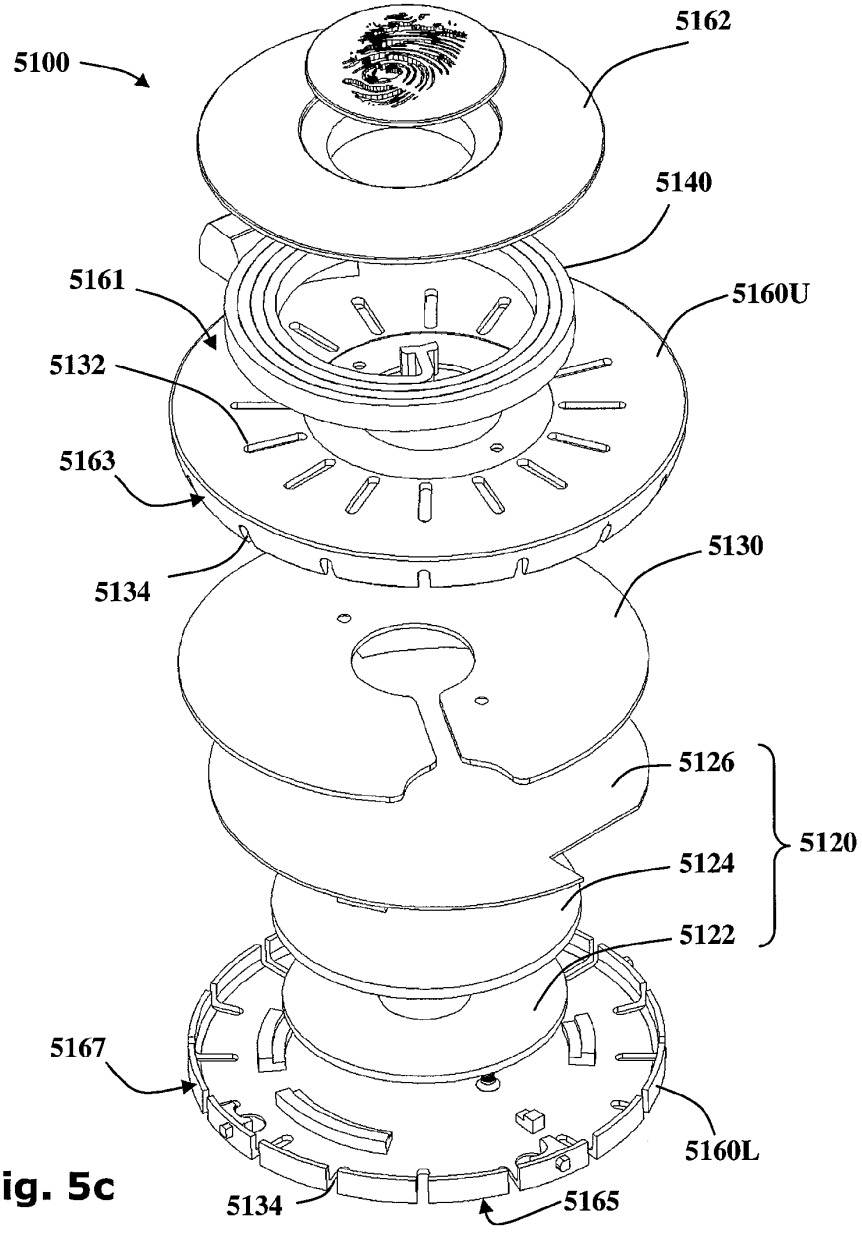

5100
5162
5140
5161
5160U
5132
5163
5130
5134
5126
5120
5124
5122
5167
5160L
5134
5165

Fig. 5c

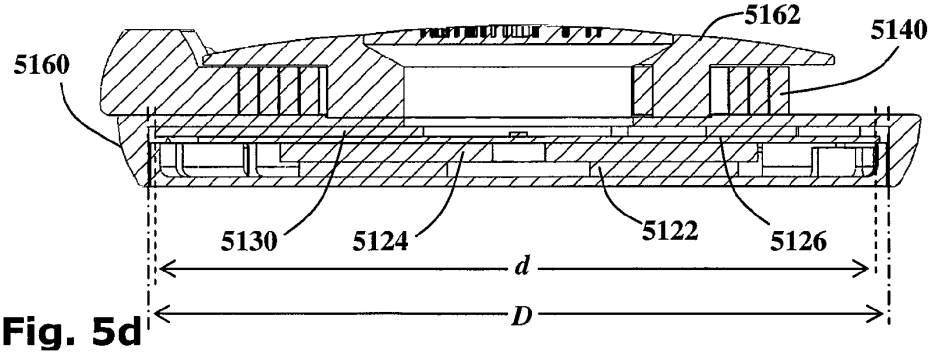

5162
5140
5160
5130
5124
5122
5126
d
D

Fig. 5d

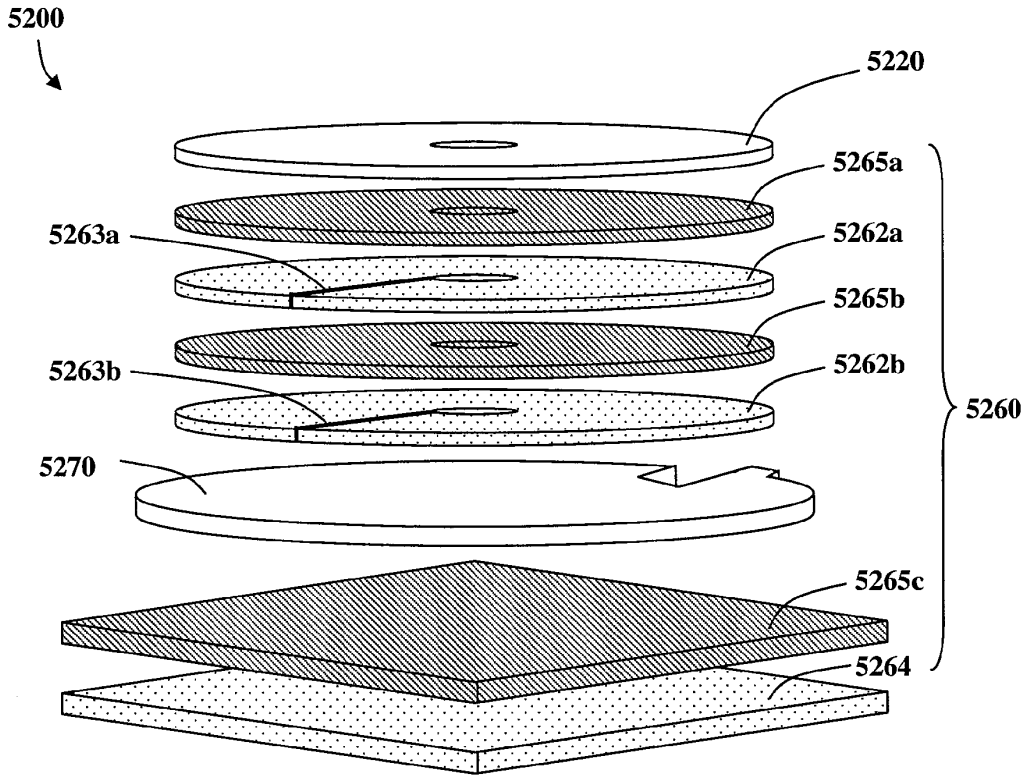

5200
5220
5265a
5263a
5262a
5265b
5263b
5262b
5260
5270
5265c
5264

Fig. 5e

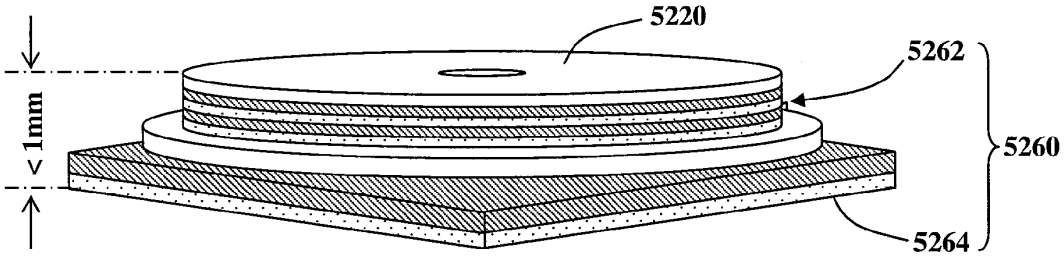

5220
5262
< 1mm
5260
5264

Fig. 5f

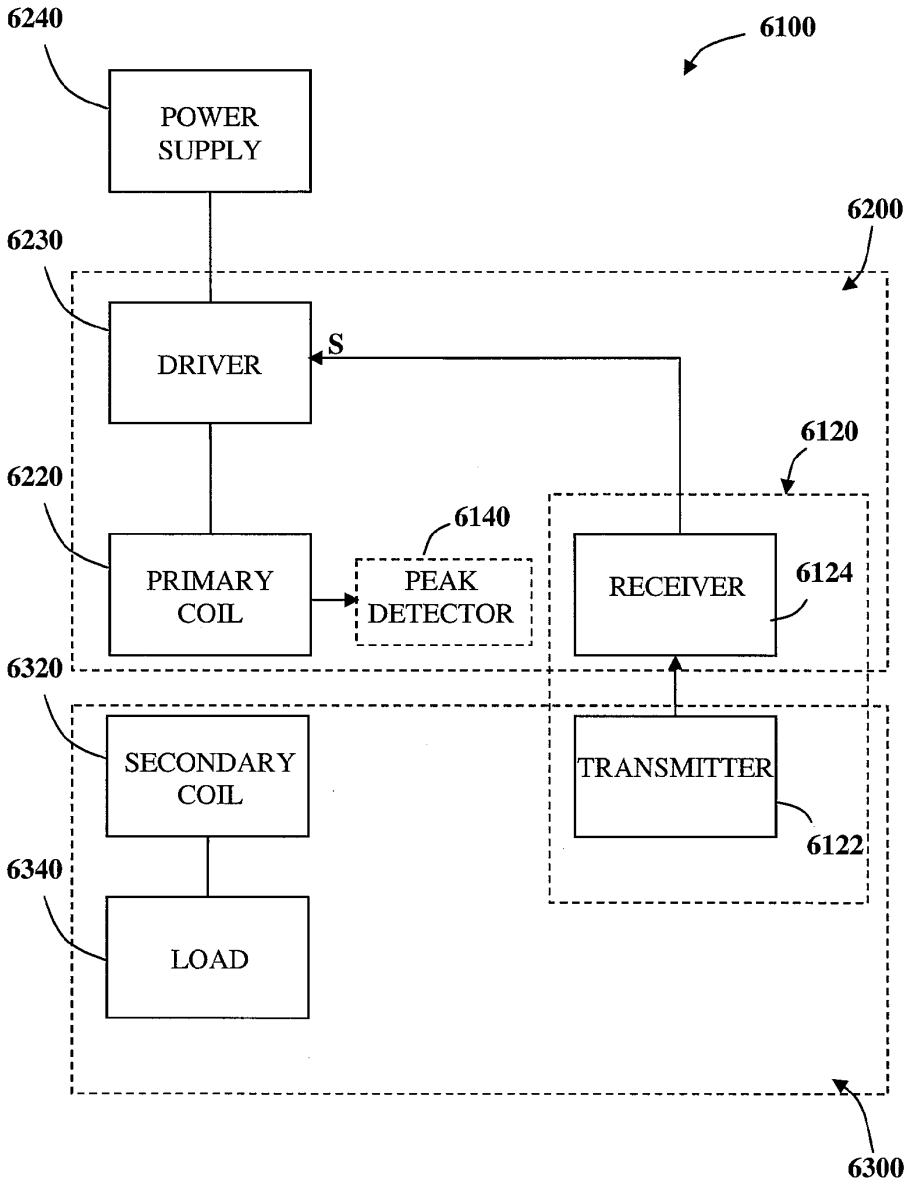

6240
6100
POWER SUPPLY
6200
6230
DRIVER
S
6120
6220
6140
PRIMARY COIL
PEAK DETECTOR
RECEIVER
6124
6320
SECONDARY COIL
TRANSMITTER
6122
6340
LOAD
6300

Fig. 6a

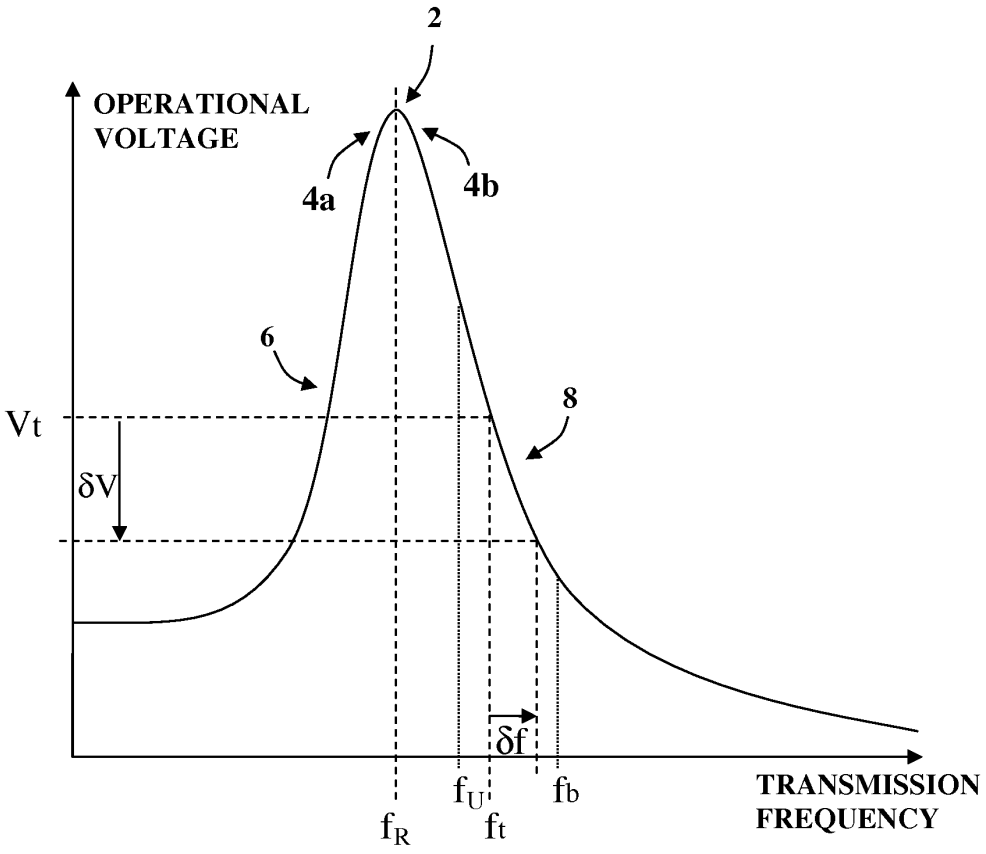

2
OPERATIONAL
VOLTAGE
4a
4b
6
8
Vt
δV
δf
f_R
f_U
ft
fb
TRANSMISSION
FREQUENCY

Fig. 6b

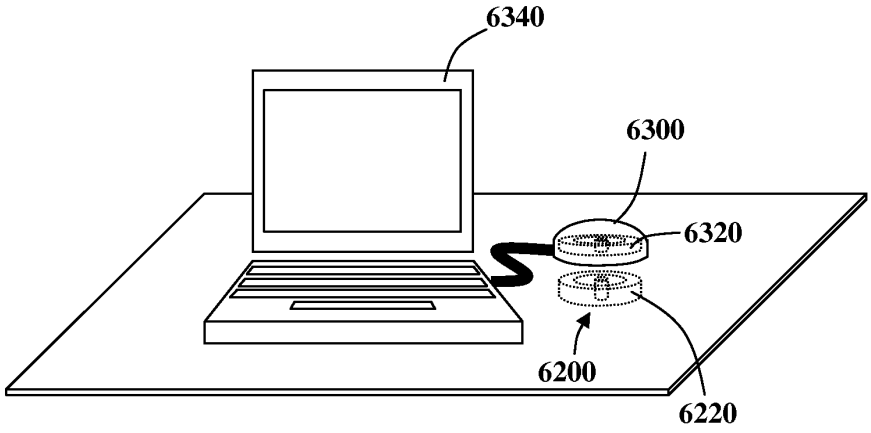

6340
6300
6320
6200
6220

Fig. 6c

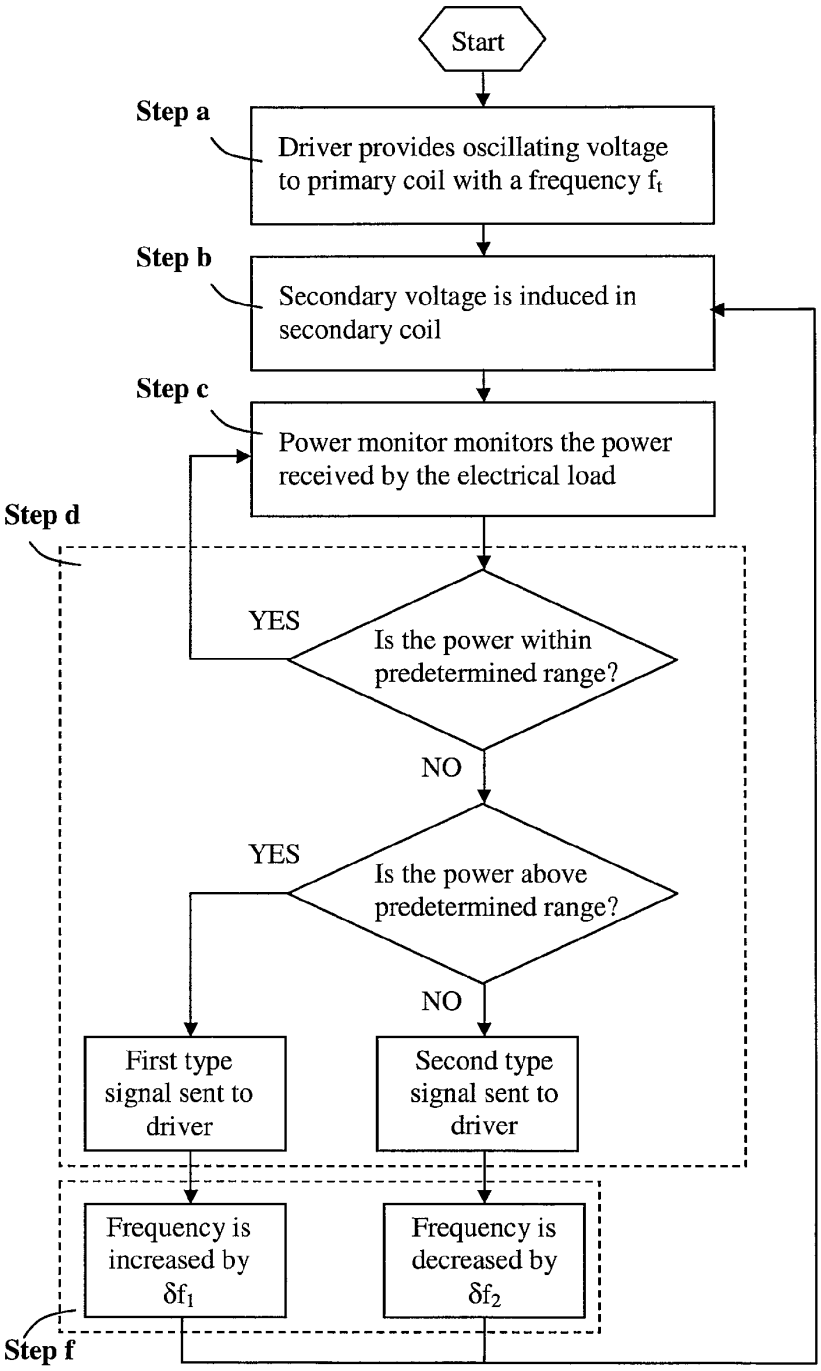

Start
Step a
Driver provides oscillating voltage to primary coil with a frequency f_t
Step b
Secondary voltage is induced in secondary coil
Step c
Power monitor monitors the power received by the electrical load
Step d
YES
Is the power within predetermined range?
NO
YES
Is the power above predetermined range?
NO
First type signal sent to driver
Second type signal sent to driver
Frequency is increased by δf_1
Frequency is decreased by δf_2
Step f

Fig. 6d

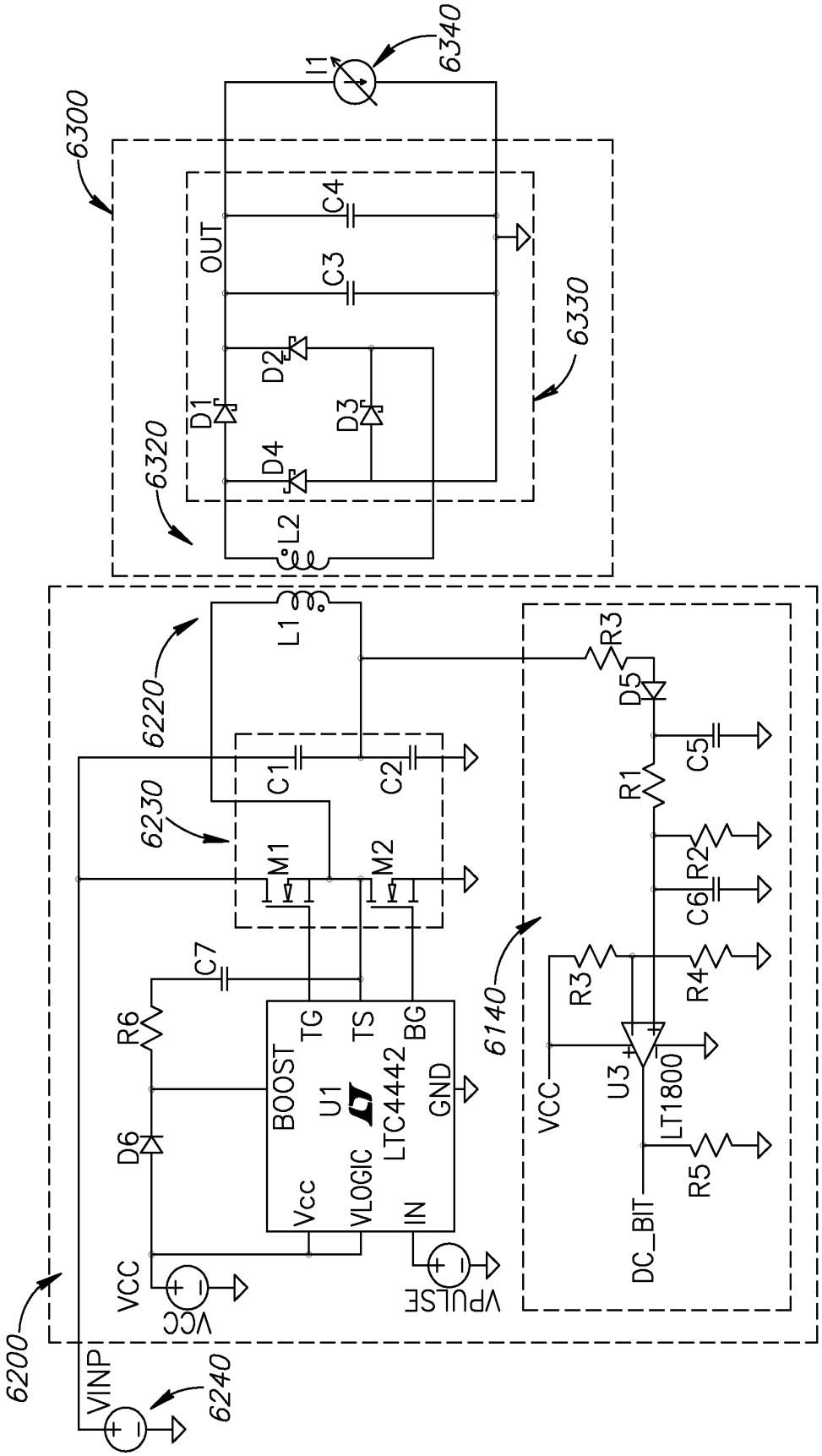

6300
I1
6340
OUT
C4
C3
6330
D2
D1
D3
D4
6320
L2
6220
L1
6230
C1
C2
M1
M2
C7
R6
D6
BOOST
TG
TS
BG
U1
LTC4442
Vcc
VLOGIC
IN
GND
VCC
VPULSE
6200
VINP
6240
6140
R3
D5
R1
C5
R2
C6
R4
R3
VCC
U3
LT1800
R5
DC_BIT

FIG.6e

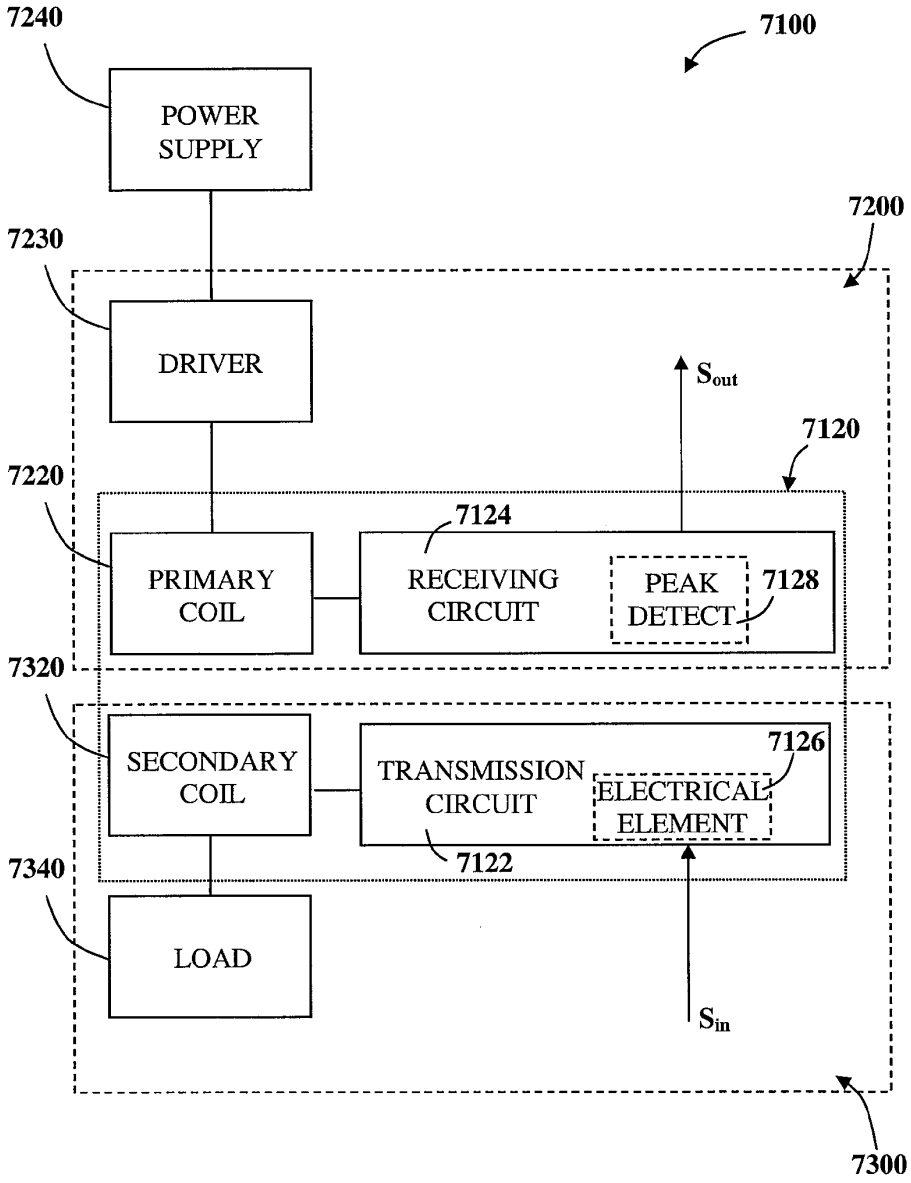

7240
7100
POWER SUPPLY
7200
7230
DRIVER
S_{out}
7120
7220
7124
PRIMARY COIL
RECEIVING CIRCUIT
PEAK DETECT
7128
7320
SECONDARY COIL
7126
TRANSMISSION CIRCUIT
ELECTRICAL ELEMENT
7122
7340
LOAD
S_{in}
7300

Fig. 7a

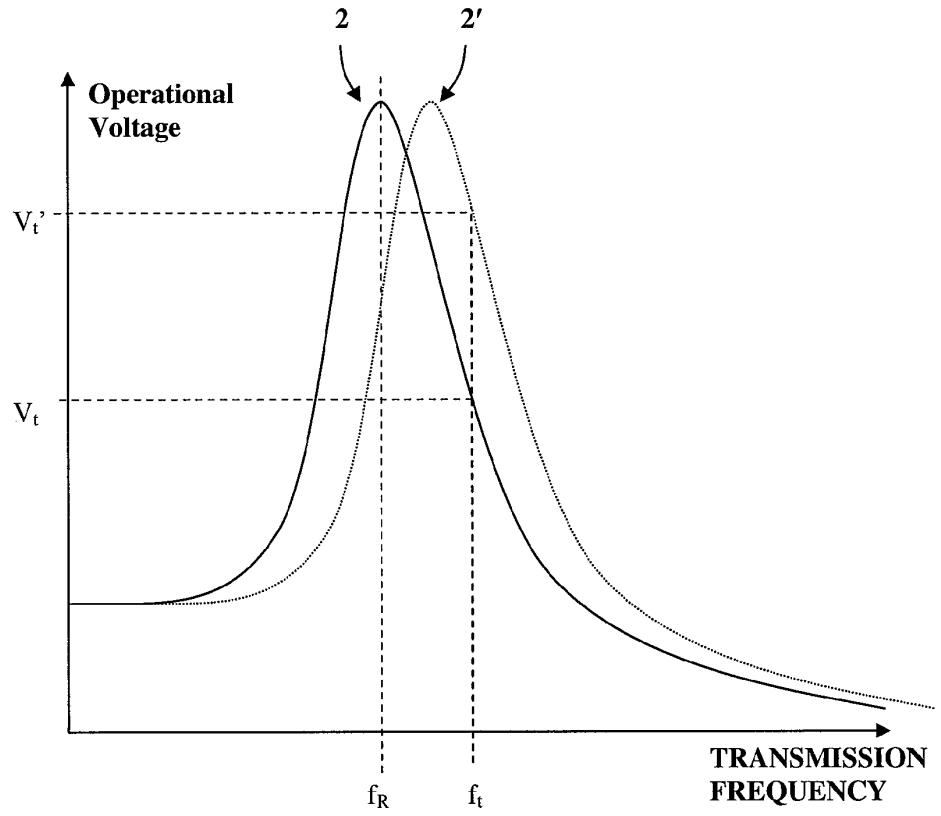


Fig. 7b

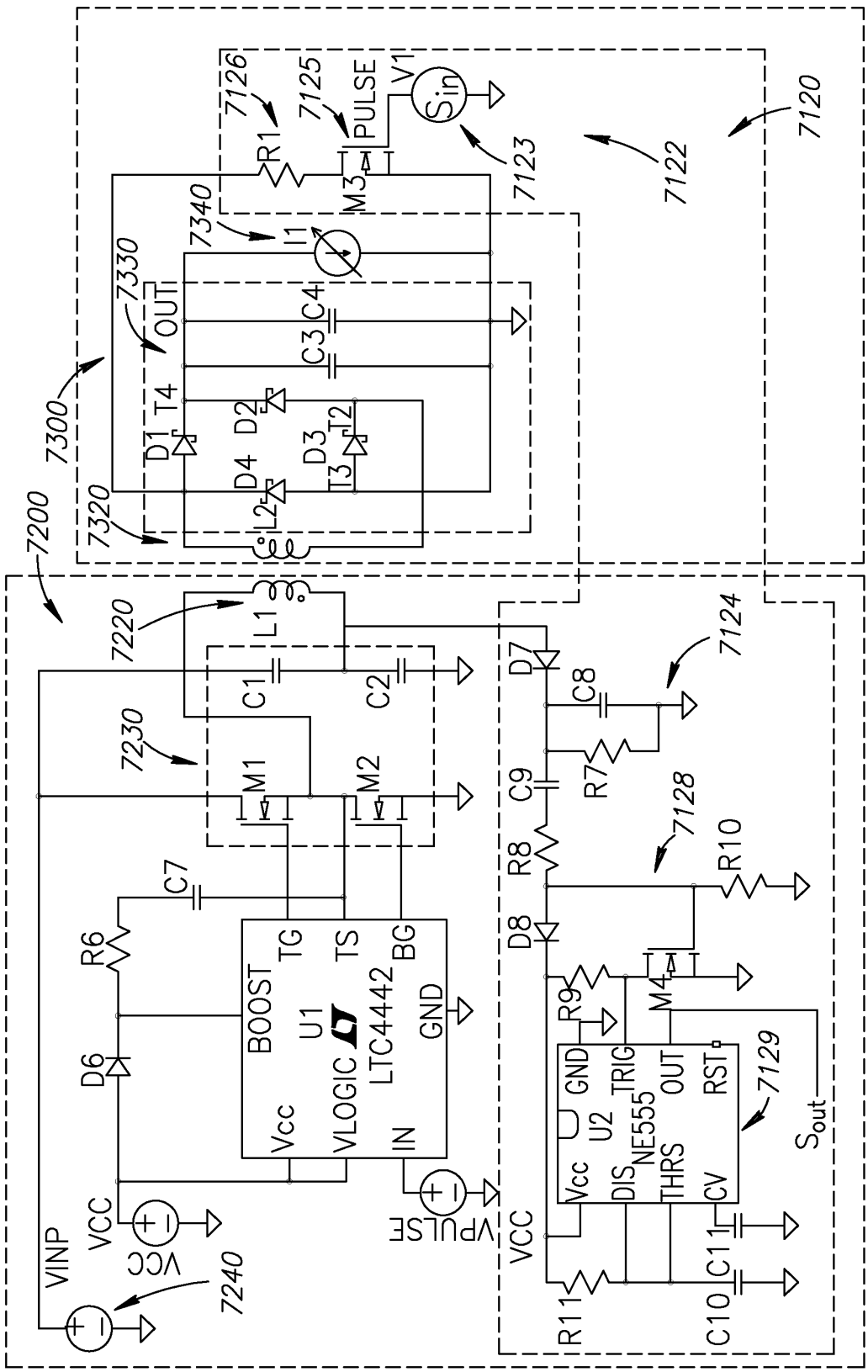

7200
7300
7320
7330
7340
7120
7122
7123
7125
7126
7220
7230
7240
7124
7128
7129
VINP
VCC
VPULSE
BOOST
TG
TS
BG
GND
Vcc
VLOGIC
IN
U1
LTC4442
U2
NE555
DIS
THRS
CV
TRIG
OUT
RST
PULSE
V1
Sin
Sout
L1
L2
C1
C2
C3
C4
C7
C8
C9
C10
C11
R1
R6
R7
R8
R9
R10
R11
M1
M2
M3
M4
I1
D1
D2
D3
D4
D6
D7
D8
T2
T3
T4

FIG. 7c

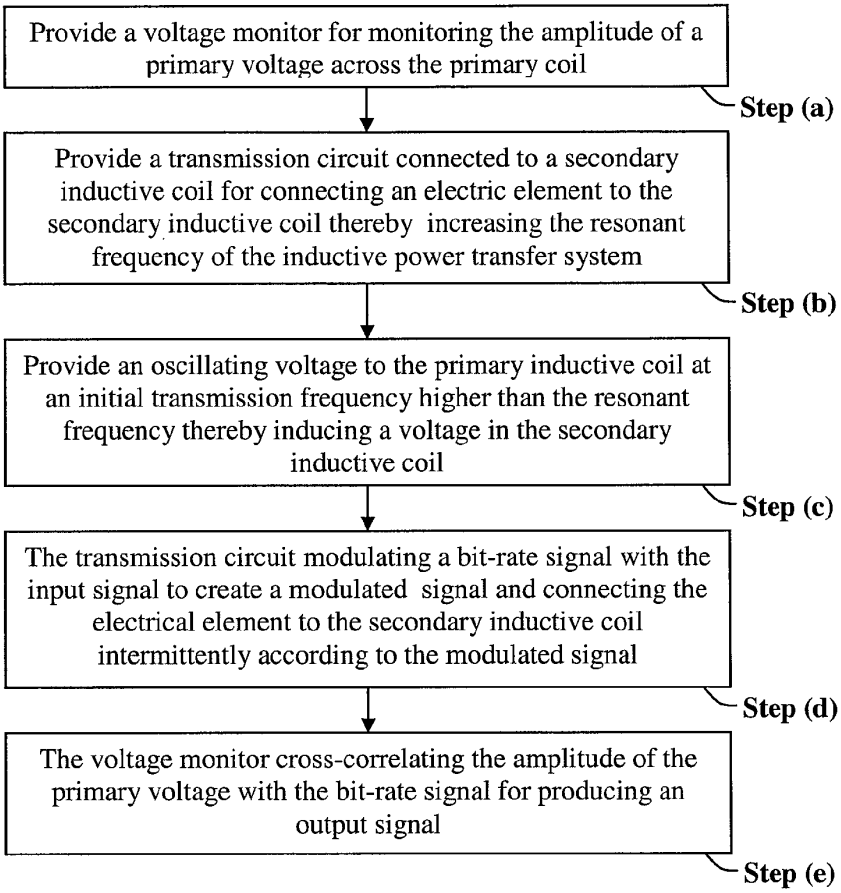

Provide a voltage monitor for monitoring the amplitude of a primary voltage across the primary coil
Step (a)
Provide a transmission circuit connected to a secondary inductive coil for connecting an electric element to the secondary inductive coil thereby increasing the resonant frequency of the inductive power transfer system
Step (b)
Provide an oscillating voltage to the primary inductive coil at an initial transmission frequency higher than the resonant frequency thereby inducing a voltage in the secondary inductive coil
Step (c)
The transmission circuit modulating a bit-rate signal with the input signal to create a modulated signal and connecting the electrical element to the secondary inductive coil intermittently according to the modulated signal
Step (d)
The voltage monitor cross-correlating the amplitude of the primary voltage with the bit-rate signal for producing an output signal
Step (e)

Fig. 7d

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

YOSSI AZANCOT

Group Art Unit:

Examiner:

Serial No.:

Filed: Herewith

For: TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

Attorney Docket No.: POWM0130PUSA1

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UNDER 37 C.F.R. § 1.97(b)(1)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56 and §§ 1.97-1.98, the references listed and identified on the attached Forms PTO/SB/08a are being submitted herewith for consideration by the Examiner. This Statement is being filed in accordance with 37 C.F.R. § 1.97(b)(1).

While this Statement is being filed in compliance with the duty of disclosure, citation of the listed references is not to be construed as an admission that any of the references are "material" as defined under 37 C.F.R. § 1.56(b).

In accordance with 37 C.F.R. § 1.98(d), copies of the listed references are not being provided since the references were previously cited by or submitted to the Patent and Trademark

Office in prior application Serial No. 12/883,457, filed September 16, 2010 (pending), of which the present application is a division.

Respectfully submitted,

YOSSI AZANCOT

By: /David S. Bir/
David S. Bir
Reg. No. 38,383
Attorney/Agent for Applicant

Date: January 10, 2014

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	Attorney Docket Number	POWM0130PUSA1

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	Attorney Docket Number	POWM0130PUSA1

	25	20070057763	A1	2007-03-15	BLATTNER et al.	
	26	20070076459	A1	2007-04-05	LIMPKIN	
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	33	20080049988	A1	2008-02-28	BASILE et al.	
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	38	20080223926	A1	2008-09-18	MILLER et al	
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	42	20090040807	A1	2009-02-12	DOUMAE et al	
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	47	20090084705	A1	2009-04-02	JUSTISS	
	48	20090097221	A1	2009-04-16	SAYED et al.	
	49	20090102416	A1	2009-04-23	BURLEY	
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	58	20090243791	A1	2009-10-01	PARTIN et al	
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	60	20090273891	A1	2009-11-05	PEIKER	
	61	20090278494	A1	2009-11-12	RANDALL	
	62	20100039066	A1	2010-02-18	YUAN et al	
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	1	0160990	EP	A2	1985-11-13	WILKE et al		☐
	2	0160990	EP	B1	1991-01-16	WILKE et al		☐
	3	0558316	EP	A1	1993-09-01	GOBLE et al		☐

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	4	9602879	WO	A1	1996-02-01	KIKINIS et al		☐
	5	0201557	WO	A1	2002-01-03	KOHYAMA et al		☐
	6	0215320	WO	A1	2002-02-21	KIM et al		☐
	7	2399466	GB	A	2004-09-15	SHU-YUEN		☐
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	10	2006015143	WO	A2	2006-02-09	JOHNSON et al		☐
	11	2429372	GB	A	2007-02-21	PETER		☐
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	15	2008114268	WO	A2	2008-09-25	AZANCOT et al.		☐
	16	1990734	EP	A1	2008-11-12	BELLUSCI		☐
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	18	2009047768	WO	A2	2009-04-16	AZANCOT et al.		☐
	19	2009047769	WO	A2	2009-04-16	AZANCOT et al.		☐
	20	2009049657	WO	A1	2009-04-23	LUCIEN et al.		☐
	21	2009108958	WO	A1	2009-09-03	JOHNSON		☐
	22	2010025156	WO	A1	2010-03-04	COOK et al.		☐
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	1	LIU et al. "An Analysis of Double-layer Electromagnetic Shield for a Universal Contactless Battery Charging Platform", IEEE 2005, Pg.1767-1772	☐
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	4	TANG et al. "Evaluation of the Shielding Effects on Printed-Circuit-Board Transformers Using Ferrite Plates and Copper Sheets", IEEE Transactions on Power Electronics November 2002, Vol.17, No.6, Pg.1080-1088	☐
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	12	International Search Report for PCT/IL2008/01641, Completed by the US Patents and Trademark Office on May 21, 2009, 3 Pages	☐

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Name/Print	David S. Bir	Registration Number	38383

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	2	3414796		1968-12-03	HENQUET	
	3	8049370		2011-11-01	AZANCOT	
	4	5455467		1995-10-03	YOUNG	
	5	4580062		1986-04-01	MACLAUGHLIN	
	6	7278310		2007-10-09	RICE	
	7	RE31524		1984-02-21	HOEBEL	
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	1	2005041281	WO	A1	2005-05-06	NORTHROP GRUMMAN CORPORATION		☐
	2	2001-309579	JP		2001-11-02	MATSUSHITA ELECTRIC WORKS LTD		☐
	3	2007-529110	JP		2007-10-18	THALES UK PLC		☐
	4	07-039078	JP		1995-02-07	TOSHIBA CORP		☐
	5	2005-006440	JP		2005-01-06	SEIKO EPSON CORP		☐
	6	2005-110412	JP		2005-04-21	SHARP CORP		☐

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	7	04-156242	JP		1992-05-28	SEKISUI CHEM CO LTD		☐
	8	2006-102055	JP		2006-04-20	CLEANUP CORP		☐
	9	07-036556	JP			UNKNOWN		☐
	10	2001309579	JP		2001-11-02	MATSUSHITA ELECTRIC WORKS LTD		☐
	11	2006037972	WO	A1	2005-09-30	GALLAGHER		☐

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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.

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:	
Filing Date:	
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Filer:	David S. Bir/Theresa Good
Attorney Docket Number:	POWM0130PUSA1

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	70	70
Utility Search Fee	2111	1	300	300
Utility Examination Fee	2311	1	360	360
Pages:				
Claims:				
Miscellaneous-Filing:				
Late Filing Fee for Oath or Declaration	2051	1	70	70
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**800**

Electronic Acknowledgement Receipt	
EFS ID:	17875308
Application Number:	14152358
International Application Number:	
Confirmation Number:	8993
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Customer Number:	22045
Filer:	David S. Bir
Filer Authorized By:	
Attorney Docket Number:	POWM0130PUSA1
Receipt Date:	10-JAN-2014
Filing Date:	
Time Stamp:	15:24:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$800
RAM confirmation Number	2068
Deposit Account	023978
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	WebADS.pdf	175747 3aa24895a1490502a124554efc007d958f6c6525	no	8
Warnings:					
Information:					
2	Assignee showing of ownership per 37 CFR 3.73.	aia0096.pdf	117334 00b63853766f138d3ddcd54a404d2f5e6ac49745	no	3
Warnings:					
Information:					
3	Power of Attorney	POA.pdf	80824 79762ed3bb92b1d4ec778e44f2e7bd0d5225ce60	no	1
Warnings:					
Information:					
4		DivApplicationPOWM0130PUSA1.pdf	464131 197ff724e16056bc4c15fa9b2c0dc31df87dd0d0	yes	47

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	43
Claims	44	46
Abstract	47	47

Warnings:					
Information:					
5	Drawings-only black and white line drawings	Drawings.pdf	438462 570934fe8a12a18462b6788c20331b40c639fe76	no	19
Warnings:					
Information:					
6	Transmittal Letter	IDSTransmittal0130PUSA1.pdf	141323 04cfdcccd7b53d59d4b9efae9a398b20b4c3cdd1	no	2
Warnings:					
Information:					
7	Information Disclosure Statement (IDS) Form (SB08)	updated_IDS1.pdf	617452 172b534654b7c8e04138e890715beec19674a9a9	no	19

Warnings:					
Information:					
8	Information Disclosure Statement (IDS) Form (SB08)	updated_IDS2.pdf	613243 84df1397e70f7c0a5723975a004671b7a599daff	no	6
Warnings:					
Information:					
9	Fee Worksheet (SB06)	fee-info.pdf	36653 b4fec0bdb6782507604ca82e378f259e8bd7fa1a	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	2685169	

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.

Electronic Acknowledgement Receipt	
EFS ID:	17875308
Application Number:	14152358
International Application Number:	
Confirmation Number:	8993
Title of Invention:	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY
First Named Inventor/Applicant Name:	Yossi AZANCOT
Customer Number:	22045
Filer:	David S. Bir
Filer Authorized By:	
Attorney Docket Number:	POWM0130PUSA1
Receipt Date:	10-JAN-2014
Filing Date:	
Time Stamp:	15:24:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$800
RAM confirmation Number	2068
Deposit Account	023978
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	WebADS.pdf	175747 3aa24895a1490502a124554efc007d958f6c6525	no	8
Warnings:					
Information:					
2	Assignee showing of ownership per 37 CFR 3.73.	aia0096.pdf	117334 00b63853766f138d3ddcd54a404d2f5e6ac49745	no	3
Warnings:					
Information:					
3	Power of Attorney	POA.pdf	80824 79762ed3bb92b1d4ec778e44f2e7bd0d5225ce60	no	1
Warnings:					
Information:					
4		DivApplicationPOWM0130PUSA1.pdf	464131 197ff724e16056bc4c15fa9b2c0dc31df87dd0d0	yes	47

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	43
Claims	44	46
Abstract	47	47

Warnings:					
Information:					
5	Drawings-only black and white line drawings	Drawings.pdf	438462 570934fe8a12a18462b6788c20331b40c639fe76	no	19
Warnings:					
Information:					
6	Transmittal Letter	IDSTransmittal0130PUSA1.pdf	141323 04cfdcccd7b53d59d4b9efae9a398b20b4c3cdd1	no	2
Warnings:					
Information:					
7	Information Disclosure Statement (IDS) Form (SB08)	updated_IDS1.pdf	617452 172b534654b7c8e04138e890715beec19674a9a9	no	19

Warnings:					
Information:					
8	Information Disclosure Statement (IDS) Form (SB08)	updated_IDS2.pdf	613243 84df1397e70f7c0a5723975a004671b7a599daff	no	6
Warnings:					
Information:					
9	Fee Worksheet (SB06)	fee-info.pdf	36653 b4fec0bdb6782507604ca82e378f259e8bd7fa1a	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	2685169	

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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

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
	Yossi		AZANCOT	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Jerusalem	Country of Residence i	IL

Mailing Address of Inventor:

Address 1	13/4 Hatkufah		
Address 2			
City	Jerusalem	State/Province	OT
Postal Code	92628	Country i	IL

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Amir		BEN-SHALOM	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Modiin	Country of Residence i	IL

Mailing Address of Inventor:

Address 1	8 Mentor Street		
Address 2			
City	Modiin	State/Province	OT
Postal Code	71706	Country i	IL

Inventor 3 Remove

Legal Name

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

Prefix	Given Name	Middle Name	Family Name	Suffix
	Oola		GREENWALD	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Mevasseret Zion	Country of Residence i	IL

Mailing Address of Inventor:

Address 1	107 HaShalom Street		
Address 2			
City	Mevasseret Zion	**State/Province**	OT
Postal Code	90805	**Country** i	IL

Inventor 4 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Arik		ROFE	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Jerusalem	Country of Residence i	IL

Mailing Address of Inventor:

Address 1	8 Hameyasdim Street		
Address 2			
City	Jerusalem	**State/Province**	OT
Postal Code	96224	**Country** i	IL

Inventor 5 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Alfred		LEI-BOVITZ	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Petach Tikva	Country of Residence i	IL

Mailing Address of Inventor:

Address 1	46 Ha'atzmaut Street		
Address 2			
City	Petach Tikva	**State/Province**	OT
Postal Code	49379	**Country** i	IL

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

Inventor 6 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Dov		RHODES	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	D.N. Misgav	Country of Residence i	IL

Mailing Address of Inventor:

Address 1	Moshav Shorashim		
Address 2			
City	D.N. Misgav	**State/Province**	OT
Postal Code	20164	**Country** i	IL

Inventor 7 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Noam		MEYUHAS	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Jerusalem	Country of Residence i	IL

Mailing Address of Inventor:

Address 1	56 A'Tshernechovski Street		
Address 2			
City	Jerusalem	**State/Province**	OT
Postal Code	92585	**Country** i	IL

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	22045		
Email Address		Add Email	Remove Email

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

Application Information:

Title of the Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY		
Attorney Docket Number	POWM0130PUSA1	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	19	**Suggested Figure for Publication (if any)**	1

Filing By Reference

Only compete 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 i

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	22045		

Additional Representative Information blocks may be generated within this form by selecting the **Add** button.

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Division of	12883457	2010-09-16
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12883457	Continuation of	PCTIL2008001641	2008-12-18
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCTIL2008001641	Claims benefit of provisional	61064618	2008-03-17
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCTIL2008001641	Claims benefit of provisional	61071151	2008-04-15
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCTIL2008001641	Claims benefit of provisional	61129526	2008-07-02
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCTIL2008001641	Claims benefit of provisional	61129859	2008-07-24
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCTIL2008001641	Claims benefit of provisional	61129970	2008-08-04

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(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(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 (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

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

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 of 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

◉ 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	

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

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	POWERMAT TECHNOLOGIES, LTD.

Mailing Address Information:			
Address 1	Kiryat Hatikshoret		
Address 2			
City	NEVE ILAN	**State/Province**	OT
Country i	IL	Postal Code	90850
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 subsitute 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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	POWM0130PUSA1
	Application Number	
Title of Invention	TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY	

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 form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications					
Signature	/David S. Bir/				
First Name	David	Last Name	Bir	Registration Number	38383

Additional Signature may be generated within this form by selecting the Add button.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office;U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of1995, no persons arerequired to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: POWERMAT TECHNOLOGIES, LTD

Application No./Patent No.: _____ Filed/Issue Date: _____

Titled: TRANSMISSION-GUARD SYSTEM AND METHOD FOR AN INDUCTIVE POWER SUPPLY

POWERMAT TECHNOLOGIES, LTD., 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 027508, Frame 0819, 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 by37 CFR3.73(b). The information is required toobtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentialityis governed by35 U.S.C. 122and 37 CFR1.11 and1.14. Thiscollection is estimated to take 12 minutes to complete, including gathering, preparing, and submittingthe 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 tothe 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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STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

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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.

/David S. Bir/	2014-01-10
Signature	Date
David S. Bir	38383
Printed or Typed Name	Title or Registration Number

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Privacy Act Statement

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

The informationprovided 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 informationin 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 InternationalApplication 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, arecord 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 thissystem 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.