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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/806,779	03/02/2020	John Douglas Steinberg	EFACT.006C5	1851
144465	7590	05/25/2022	EXAMINER	
Tanner IP, PLLC			LAU, TUNG S	
149 West Gilpin Avenue				
Norfolk, VA 23503				
			ART UNIT	PAPER NUMBER
			2862	
			NOTIFICATION DATE	DELIVERY MODE
			05/25/2022	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):

dan@tannerip.com
eofficeaction@appcoll.com
james@tannerip.com

GOOGLE EXHIBIT 1030

Notice of Abandonment**Application No.**

16/806,779

Applicant(s)

Steinberg et al.

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

This application is abandoned in view of:

1. ☒ Applicant's failure to timely file a proper reply to the Office letter mailed on 20 September 2021.
 - (a) ☐ A reply was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
 - (b) ☐ A proposed reply was received on _____, but it does not constitute a proper reply under 37 CFR 1.113 to the final rejection. (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) if this is utility or plant application, a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. Note that RCEs are not permitted in design applications.)
 - (c) ☐ A reply was received on _____ but it does not constitute a proper reply, or a *bona fide* attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 8 below).
 - (d) ☒ No reply has been received.
2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
 - (a) ☐ The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
 - (b) ☐ The submitted fee of \$ _____ is insufficient. A balance of \$ _____ is due.
The issue fee required by 37 CFR 1.18 is \$ _____. The publication fee, if required by 37 CFR 1.18(d), is \$ _____.
 - (c) ☐ The issue fee and publication fee, if applicable, has not been received.
3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
 - (a) ☐ Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
 - (b) ☐ No corrected drawings have been received.
4. ☐ The letter of express abandonment which is signed by the attorney or agent of record or other party authorized under 37 CFR 1.33(b). See 37 CFR 1.138(b).
5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34) upon the filing of a continuing application.
6. ☐ The decision by the Patent Trial and Appeal Board rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.
7. ☐ The dismissal of the appeal in an application having no allowed claims. (When an appeal is dismissed in an application having no allowed claims the application stands abandoned. See MPEP 1215.04 subsections I-V for an explanation of the reasons why an appeal is dismissed.)
8. ☐ The reason(s) below:

/MARCUS M WASHINGTON/

Petitions to revive under 37 CFR 1.137, or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.

U.S. Patent and Trademark Office

PTOL-1432 (Rev. 04-19)

Notice of Abandonment

Part of Paper No. 20220520



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
16/806,779	03/02/2020	John Douglas Steinberg	EFACT.006C5

CONFIRMATION NO. 1851

POWER OF ATTORNEY NOTICE



20995
KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

Date Mailed: 03/23/2022

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/21/2022.

- 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.

/sstephanos/



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/806,779	03/02/2020	John Douglas Steinberg	EFACT.006C5

144465
Tanner IP, PLLC
149 West Gilpin Avenue
Norfolk, VA 23503

CONFIRMATION NO. 1851
POA ACCEPTANCE LETTER



Date Mailed: 03/23/2022

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/21/2022.

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.

/sstephanos/

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.

STATEMENT UNDER 37 CFR 3.73(c)Applicant/Patent Owner: ECOFACOR, INC.Application No./Patent No.: 16/806,779Filed/Issue Date: 20 220 3 -2Titled: SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEMECOFACOR, INC., 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 025711, Frame 0873, 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.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Daniel A. Tanner, III/

2022-03-21

Signature

Date

Daniel A. Tanner, III

54734

Printed or Typed Name

Title or Registration Number

Privacy Act Statement

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

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

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

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:

144465

OR



Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number

Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:



The address associated with Customer Number: 144465

OR



Firm or individual name

Address

City

State

Zip

Country

Telephone

Email

Assignee name and address:

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Signature

Date 2022-03-18

Name

Sriyati HABIB

Telephone 646-344-0736

Title

CEO -- ECOFACTOR, INC.

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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

Privacy Act Statement

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

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

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

Electronic Patent Application Fee Transmittal

Application Number:				
Filing Date:				
Title of Invention:	Your fee transmittal sheet cannot be generated at this time. Please complete your submission. After completing your submission, please contact the Electronic Business Center (EBC) to request the fee transmittal sheet for this submission. We apologize for the inconvenience. Electronic Business Center (EBC) 1-866-217-9197 (toll-free) or 571-272-4100 6 a.m. to 12 Midnight Eastern Time Monday -Friday			
First Named Inventor/Applicant Name:				
Filer:				
Attorney Docket Number:				
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:				
Extension-of-Time:				

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

Electronic Acknowledgement Receipt

EFS ID:	45281856
Application Number:	16806779
International Application Number:	
Confirmation Number:	1851
Title of Invention:	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
First Named Inventor/Applicant Name:	John Douglas Steinberg
Customer Number:	20995
Filer:	Daniel Albert Tanner
Filer Authorized By:	
Attorney Docket Number:	EFACT.006C5
Receipt Date:	21-MAR-2022
Filing Date:	02-MAR-2020
Time Stamp:	21:12:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 1480
RAM confirmation Number	E20223KL12544597
Deposit Account	
Authorized User	

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

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	StatementUnder373In779App.pdf	2281706	no	3
			7eab5b68eb04737401cc1af6cd07d08b4e25e49a		
Warnings:					
Information:					
2	Power of Attorney	POAForFiling.pdf	820471	no	2
			711afbff2cd802e7f3c0c1fb19516004e8bca6db		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30061	no	2
			769380a49c92bc8e06d1c1dfb5959d2273810ce5		
Warnings:					
Information:					
Total Files Size (in bytes):			3132238		
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.					

Electronic Acknowledgement Receipt

EFS ID:	38742241
Application Number:	16806779
International Application Number:	
Confirmation Number:	1851
Title of Invention:	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
FirstNamed Inventor/Applicant Name:	John Douglas Steinberg
Customer Number:	20995
Filer:	John R. King/Fabiola Esmerio
Filer Authorized By:	John R. King
Attorney Docket Number:	EFACT.006C5
Receipt Date:	02-MAR-2020
Filing Date:	
Time Stamp:	17:39:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

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

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	EFACT-006C5_ADS.pdf	1256640	no	9
			3f81733f1ca9d184dfc3ab721ecd854fd4403038		

Warnings:

Information:					
2		EFACT-006C5_SPEC.pdf	109207 bd88f80c33ebca13123787f8108f513c4710457a	yes	23
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	21	
	Claims		22	22	
	Abstract		23	23	
Warnings:					
Information:					
3	Drawings-only black and white line drawings	EFACT-006C5_drawings.pdf	231825 9232292301bfaa2b68131c5f8321d3fd0d22703	no	13
Warnings:					
Information:					
4	Oath or Declaration filed	EFACT-006C5_declaration.pdf	163619 e65d0ef64e168a97c6cfeb3efa2231289ed617e1	no	2
Warnings:					
Information:					
5	Power of Attorney	EFACT-006C5_POA.pdf	252984 8488c5f4c4ff237fff17acd675f6d491bd05d1a	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			2014275		

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. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/806,779	03/02/2020	John Douglas Steinberg	EFACT.006C5	1851
20995 7590 09/20/2021 KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614			EXAMINER LAU, TUNG S	
			ART UNIT 2862	PAPER NUMBER
			NOTIFICATION DATE 09/20/2021	DELIVERY MODE 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):

efiling@knobbe.com
jayna.cartee@knobbe.com

Office Action Summary

Application No.

16/806,779

Applicant(s)

Steinberg et al.

Examiner

TUNG S LAU

Art Unit

2862

AIA (FITF) 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 03/02/2020.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2a) ☐ This action is **FINAL**.

2b) ☒ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☒ Claim(s) 1 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 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 03/02/2020 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)

3) ☐ Interview Summary (PTO-413)

Paper No(s)/Mail Date ____.

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)

4) ☐ Other: ____.

Paper No(s)/Mail Date ____.

Notice of Pre-AIA or AIA Status

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

DETAILED ACTION

Continuing Data

1. Appears the parent case 16374083 has a third party submission and Petition Requesting Trial, See interview summary.

Information Disclosure Statement

2. Numerous references listed in the Information Disclosure Statement filed on this case have been considered by the examiner (see attached PTO-1449 or PTO/SB/08A and 08B forms).

The numerous IDS submitted contain this case appears lengthy and very complex. The examiner has considered the references to the extent reasonably expected during normal examination time. **(If applicant considers there is a particular reference or teaching particularly relevant to the claimed invention it is requested from the applicant to provide a statement indicating such relevance and a clear identification of such reference).**

Consideration by the examiner of the information submitted in an IDS means nothing more than considering the documents in the same manner as other documents in Office search files are considered by the examiner while conducting a search of the prior art in a proper field of search. (see MPEP 609)

"voluminous references" submitted by the applicant. In this case just over 75 references were submitted may not comply with Applicant's duty of disclosure

[T]he cloaking of a clearly relevant reference by inclusion in a long list of citations may not comply with the Applicant's duty of disclosure. *Penn Yan Boats, Inc. v. Sea Lark Boats, Inc.*, 359 F. Supp. 948 (S.D. Fla. 1972). . . . accord with dicta from *Molins PLC v. Textron, Inc.*, 48 F.3d 1172 (Fed. Cir. 1995), stating that forcing the Examiner to find "a needle in a haystack" is "probative of bad faith." *Id.* [The *Molins*] case presented a situation where the disclosure was in excess of 700 pages and contained more than fifty references.

In *Golden Valley Microwave Foods Inc. v. Weayer Popcorn Co. Inc.*, the court held the patent-in-suit unenforceable due to inequitable conduct where the patentee submitted a material reference "in a series of disclosures of less relevant prior art references, so that the examiner would be likely to ignore the entire list and permit the application to issue." 837 F. Supp. 1444, 1477 (N.D. Ind. 1992). failed to highlight to the examiner that one of the two "buried" patents disclosed a particularly relevant embodiment that covered the same subject matter as a pending claim. *Id.* at 1457, 1477.

Similarly, in *Penn Yan Boats Inc. v. Sea Lark Boats Inc.*, the patentee submitted to the USPTO a material reference as one of 13 references that were allegedly discovered in a pre-examination search. 359 F. Supp. 948, 964 (D.C. Fla. 1972), *aff'd* without op., 479 F.2d 1328 (5th Cir.1973), *cert. denied*, 414 U.S. 874 (1973).

The court found such representation to be false because the material reference did not issue until more than a year after the prosecution started and, therefore, could not have been discovered in a pre-examination search. *Id.*

The court subsequently held the patent unenforceable because "the purpose of this misrepresentation was to bury [that reference] in a long list of allegedly old prior art patents in the hope that the patent examiner ... would ignore the list and permit the [patent-in-suit] to issue." *Id.* at 965.

Best to avoid perception of concealment of information (IDS submitted to the office) that the Examiner could not have discovered on his own (*Nevro Corp. v. Boston Scientific Corp.* (N.D. Cal. 2017))

Applicant is reminded of section 2004, paragraph 13, of the MPEP.

It is desirable to avoid the submission of long lists of documents if it can be avoided. Eliminate clearly irrelevant and marginally pertinent cumulative information. If a long list is submitted, highlight those documents which have been specifically brought to applicant's attention and/or are known to be of most significance. See *Penn Yan Boats, Inc. v. Sea Lark Boats, Inc.*, 359 F. Supp. 948, 175 USPQ 260

(S.D. Fla. 1972), *aff'd*, 479 F.2d 1338, 178 USPQ 577 (5th Cir. 1973), *cert. denied*, 414 U.S. 874 (1974). But cf. *Molins PLC v. Textron Inc.*, 48 F.3d 1172, 33 USPQ2d 1823 (Fed. Cir. 1995).

Applicant(s) inundated the Examiner with a large volume of prior art that is not material and may obscure a single reference that is material and thus may be effective as improper as withholding a material reference. *Ex Parte Morning Surf Corp.*, 230 USPQ 446, and *Penn Yan Boats, Inc. v. Sea Lark Boats, Inc.*, 359 F. Supp. 948, 175 USPQ 260 (S.D. Fla. 1972).

“Significantly, an applicant’s duty of disclosure of material and information is not satisfied by presenting a patent examiner with “a mountain of largely irrelevant [material] from which he is *presumed* to have been able, with his expertise and with adequate time, to have found the critical [material]. It ignores the real world conditions under which examiners work.” *Rohm & Haas Co. v. Crystal Chemical Co.* 722 F.2d 1556, 1573 [220 USPQ 289], (Fed.Cir., 1983)
(The following is an excerpt from MPEP 609:

“Although a concise explanation of the relevance of the information is not required for English language information, applicants are encouraged to provide a concise explanation of why the English-language information is being submitted and how it is understood to be relevant. Concise explanations (especially those which point out the relevant pages and lines) are helpful to the Office, particularly where documents are lengthy and complex and applicant is aware of a section that is highly relevant to patentability or where a large number of documents are submitted and applicant is aware that one or more are highly relevant to patentability.” (MPEP 609))

Claim Rejections - 35 USC § 102

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

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by Wedekind (US 5197666 A, DATE PUBLISHED: mar. 30, 1993).

Regarding claim 1:

Wedekind describes a system for controlling an HVAC system at a user's Building (abstract, fig. 1, HVAC in building), the system comprising: a memory (col. 4, lines 55-60, memory); and one or more processors (col. 4, lines 55-60, computer); the one or more processors configured to receive a first data from at least one sensor (col. 4, lines 55-67, connect to sensor and received data), wherein the first data from the at least one sensor includes a measurement of at least one characteristic of the user's building (col. 4, lines 55-67, inside temperature); the one or more processors further configured to receive a second data from a network connection (col. 4, lines 55-67, outside temperature), wherein the second data from the network connection is collected from a source external to the building; the one or more processors further configured to receive a first temperature set point for the building (fig. 2, occupancy comfort temperature level), wherein the first set point includes a temperature value and a

time value; the one or more processors further configured to predict, based at least on the first data from the sensor (fig. 2, time scale predict temperature), the second data from the network connection, and the first temperature set point, the time necessary for the HVAC system to operate in order to reach the temperature value by the time value (col. 6, lines 10-30, the temperature of the conditioned space 28 has reached a thermal equilibrium with the internal thermal capacitance 55 (internal walls and contents) of the enclosure 30); and the one or more processors further configured to control the HVAC system to operate to cause the building to reach the temperature value by the time value (col. 5-6, line 46-68, t₀, t₁, t₂....1 pm, 5pm, 11pm etc).

Claim Rejections - 35 USC § 101

4. Claim 1 of this application is patentably indistinct from claim 1 of Application No. 16,374.083 now US Patent 10,612,983. Pursuant to 37 CFR 1.78(f), when two or more applications filed by the same applicant or assignee contain patentably indistinct claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the patentably indistinct claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

A rejection based on double patenting of the “same invention” type finds its support in the language of 35 U.S.C. 101 which states that “whoever invents or discovers any new and useful process... may obtain a patent therefor...”

(Emphasis added). Thus, the term “same invention,” in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the claims that are directed to the same invention so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Reminds the applicant that Claims for Different Invention Added After an Office Action included RCE (see MPEP 821.03, MPEP § 818.01, § 818.02(a)) may consider restriction by original presentation MPEP 8.04.

Claim 1 (16/806,779, current case)	Claim 1 (16/374, 083 now US Patent 10,612,983)
1. A system for controlling an HVAC system at a user's building, the system comprising: a memory; and one or more processors; the one or more processors configured to receive a first data from at least one sensor, wherein the first data from the at least one sensor includes a measurement of at least one characteristic of the user's building; the one or more processors further configured to receive a second data from	1. A system for controlling an HVAC system at a user's building, the system comprising: a memory; and one or more processors; the one or more processors configured to receive a first data from at least one sensor, wherein the first data from the at least one sensor includes a measurement of at least one characteristic of the user's building; the one or more processors further configured to receive a second data from a network connection, wherein the

a network connection, wherein the second data from the network connection is collected from a source external to the building; the one or more processors further configured to receive a first temperature setpoint for the building, wherein the first setpoint includes a temperature value and a time value; the one or more processors further configured to predict, based at least on the first data from the sensor, the second data from the network connection, and the first temperature setpoint, the time necessary for the HVAC system to operate in order to reach the temperature value by the time value; and the one or more processors further configured to control the HVAC system to operate to cause the building to reach the temperature value by the time value.	second data from the network connection is collected from a source external to the building; the one or more processors further configured to receive a first temperature setpoint for the building, wherein the first setpoint includes a temperature value and a time value; the one or more processors further configured to predict, based at least on the first data from the sensor, the second data from the network connection, and the first temperature setpoint, the time necessary for the HVAC system to operate in order to reach the temperature value by the time value; and the one or more processors further configured to control the HVAC system to operate to cause the building to reach the temperature value by the time value.
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Contact information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung S. Lau whose telephone number is 571-272-2274, email is Tungs.Lau@uspto.gov. The examiner can normally be reached on M-F 8-5:30 EDT. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor John Breene, can be reached on 571-272-4107.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule

an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

The fax phone numbers 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).

/TUNG S LAU/
Primary Examiner, Art Unit 2862
Technology Center 2800
September 15, 2021

<i>Notice of References Cited</i>	Application/Control No. 16/806,779		Applicant(s)/Patent Under Reexamination Steinberg et al.	
	Examiner TUNG S LAU		Art Unit 2862	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-5197666-A	03-1993	Wedekind; Gilbert L.	F24F11/00	236/46R
*	B	US-10569036-B2	02-2020	Delangre; Peter	G16H40/40	1/1
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC 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.

<i>Search Notes</i> 	Application/Control No. 16/806,779	Applicant(s)/Patent Under Reexamination Steinberg et al.
	Examiner TUNG S LAU	Art Unit 2862

CPC - Searched*		
Symbol	Date	Examiner
G01K 13/00, F24F 11/30, G01M 99/005, F24F 2130/00, F24F 2130/10, F24F 11/52, F24F 11/47	09/15/2021	TL

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

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

Search Notes		
Search Notes	Date	Examiner
text class, inventor, assignment	09/15/2021	TL
PE2E	09/15/2021	TL
google scholar	09/15/2021	TL
ip.com	09/15/2021	TL

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
G01K 13/00		09/15/2021	TL

/TUNG S LAU/ Primary Examiner, Art Unit 2862	
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PTO/SB/08 Equivalent

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 1 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	1	H2176	12/05/2006	Meyer et al.	
	2	12/805705	06/10/2010	Crabtree	
	3	13/470074	08/30/2012	Steinberg	
	4	13/523697	06/14/2012	Hublou et al.	
	5	13/725447	06/06/2013	Steinberg	
	6	13/729401	12/28/2012	Sloop	
	7	13/852577	03/28/2013	Steinberg et al.	
	8	13/858710	09/05/2013	Steinberg et al.	
	9	13/861189	04/11/2013	Steinberg et al.	
	10	14/082,675 (EFACT.007C1)	11/18/2003	Steinberg et al.	
	11	14/263,762	04/28/2014	Steinberg	
	12	14/285,384	05/22/2014	Steinberg et al.	
	13	14/292,377	05/30/2014	Steinberg	
	14	14/491,554	09/19/2014	Steinberg	
	15	14/527,433	10/29/2014	Steinberg et al.	
	16	14/731,221	06/04/2015	Steinberg et al.	
	17	15/616,719	06/07/2017	Steinberg et al.	
	18	D 646,990	10/18/2011	Rhodes	
	19	D 659,560	05/15/2012	Rhodes	
	20	D 673,467	01/01/2013	Lee et al.	
	21	D 705,095 (EFACT.015DA)	05/20/2014	Steinberg et al.	
	22	3,266,725	08/16/1966	J.L. Garrison et al.	
	23	3,649,231	03/14/1972	Trethewey	
	24	3,945,432	03/23/1976	Tamblyn	
	25	3,955,359	05/11/1976	Yannone et al.	
	26	3,964,676	06/22/1976	Rooks et al.	
	27	4,019,315	04/26/1977	Yannone et al.	
	28	4,053,747	10/11/1977	Davis	

Examiner Signature /TUNG S LAU/	Date Considered 09/15/2021
*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

T¹ - Place a check mark in this area when an English language Translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.S.L/

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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	29	4,100,763	07/18/1978	Brody	
	30	4,107,542	08/15/1978	Heiser	
	31	4,129,847	12/12/1978	Teichert	
	32	4,136,732	01/30/1979	Demaray et al.	
	33	4,187,543	02/05/1980	Healey et al.	
	34	4,228,511	10/14/1980	Simcoe et al.	
	35	4,242,592	12/30/1980	Yannone et al.	
	36	4,246,491	01/20/1981	Waldron et al.	
	37	4,253,153	02/24/1981	Bitterli et al.	
	38	4,270,693	06/02/1981	Hayes	
	39	4,314,441	02/09/1982	Yannone et al.	
	40	4,316,577	02/23/1982	Adams et al.	
	41	4,341,345	07/27/1982	Hammer et al.	
	42	4,345,162	08/17/1982	Hammer et al.	
	43	4,373,351	02/15/1983	Stamp, Jr. et al.	
	44	4,390,959	06/28/1983	Cabou	
	45	4,403,644	09/13/1983	Hebert	
	46	4,451,879	05/29/1984	Welch et al.	
	47	4,460,125	07/17/1984	Barker et al.	
	48	4,475,685	10/09/1984	Grimado et al.	
	49	4,487,363	12/11/1984	Parker et al.	
	50	4,500,034	02/19/1985	Reese et al.	
	51	4,522,116	06/11/1985	Tartaglino	
	52	4,522,336	06/11/1985	Culp	
	53	4,655,279	04/07/1987	Harmon	
	54	4,660,759	04/28/1987	Barnard et al.	
	55	4,662,269	05/05/1987	Tartaglino	
	56	4,669,654	06/02/1987	Levine et al.	
	57	4,674,027	06/16/1987	Beckey	

Examiner Signature /TUNG S LAU/	Date Considered 09/15/2021
*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

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	58	4,675,828	06/23/1987	Winston	
	59	4,685,615	08/11/1987	Hart	
	60	4,702,305	10/27/1987	Beckey et al.	
	61	4,702,413	10/27/1987	Beckey et al.	
	62	4,706,882	11/17/1987	Barnard	
	63	4,711,394	12/08/1987	Samuel	
	64	4,751,961	06/21/1988	Levine et al.	
	65	4,768,706	09/06/1988	Parfitt	
	66	4,838,183	06/13/1989	Tsaveras et al.	
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	68	4,931,948	06/05/1990	Parker et al.	
	69	4,967,382	10/30/1990	Hall	
	70	5,003,998	04/02/1991	Collett	
	71	5,005,365	04/09/1991	Lynch	
	72	5,037,942	08/06/1991	Hunt et al.	
	73	5,042,265	08/27/	Baldwin et al.	
	74	5,088,645	02/18/1992	Bell	
	75	5,115,967	05/26/1992	Wedekind	
	76	5,124,502	06/23/1992	Nelson et al.	
	77	5,170,935	12/15/1992	Federspiel et al.	
	78	5,197,666	03/30/1993	Wedekind	
	79	5,224,649	07/06/1993	Brown et al.	
	80	5,244,146	09/14/1993	Jefferson et al.	
	81	5,261,481	11/16/1993	Baldwin, et al.	
	82	5,270,952	12/14/1993	Adams et al.	
	83	5,279,458	01/18/1994	Dewolf et al.	
	84	5,289,362	02/22/1994	Liebl et al.	
	85	5,292,280	03/08/1994	Janu et al.	
	86	5,294,047	03/15/1994	Schwer et al.	

Examiner Signature /TUNG S LAU/	Date Considered 09/15/2021
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 4 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	87	5,297,838	03/15/1994	Juravich	
	88	5,303,612	04/19/1994	Odom et al.	
	89	5,303,767	04/19/1994	Riley	
	90	5,314,004	05/24/1994	Strand et al.	
	91	5,318,099	06/07/1994	Zivalich, Jr.	
	92	5,322,626	06/21/1994	Frank et al.	
	93	5,348,078	09/20/1994	Dushane et al.	
	94	5,361,983	11/08/1994	Bird	
	95	5,389,120	02/14/1995	Sewell et al.	
	96	5,395,042	03/07/1995	Riley et al.	
	97	5,415,346	05/16/1995	Bishop	
	98	5,427,313	06/27/1995	Davis, Jr. et al.	
	99	5,454,511	10/03/1995	Van Ostrand et al.	
	100	5,462,225	10/31/1995	Massara et al.	
	101	5,485,878	01/23/1996	Derks	
	102	5,485,954	01/23/1996	Guy et al.	
	103	5,497,218	03/05/1996	Amico	
	104	5,511,188	04/23/1996	Pascucci et al.	
	105	5,544,036	08/06/1996	Brown et al.	
	106	5,553,661	09/10/1996	Beyerlein et al.	
	107	5,555,927	09/17/1996	Shah	
	108	5,570,838	11/05/1996	Davis, Jr. et al.	
	109	5,572,438	11/05/1996	Ehlers et al.	
	110	5,603,451	02/18/1997	Helander et al.	
	111	5,621,196	04/15/1997	Nishijima et al.	
	112	5,627,531	05/06/1997	Posso et al.	
	113	5,657,760	08/19/1997	Ying et al.	
	114	5,673,850	10/07/1997	Uptegraph	
	115	5,682,949	11/04/1997	Ratcliffe et al.	

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PTO/SB/08 Equivalent

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	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
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SHEET 5 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	116	5,706,190	01/06/1998	Russ et al.	
	117	5,717,609	02/10/1998	Packa et al.	
	118	5,725,148	03/10/1998	Hartman	
	119	5,729,474	03/17/1998	Hildebrand et al.	
	120	5,755,378	05/26/1998	Dage et al.	
	121	5,761,083	06/02/1998	Brown, Jr., et al.	
	122	5,762,265	06/09/1998	Kitamura et al.	
	123	5,769,314	06/23/1998	Drees et al.	
	124	5,801,940	09/01/1998	Russ et al.	
	125	5,808,602	09/15/1998	Sellers	
	126	5,816,059	10/06/1998	Ficchi, Jr. et al.	
	127	5,816,491	10/06/1998	Berkeley et al.	
	128	5,816,492	10/06/1998	Charles et al.	
	129	5,818,347	10/06/1998	Dolan et al.	
	130	5,822,740	10/13/1998	Haissig et al.	
	131	5,822,997	10/20/1998	Atterbury	
	132	5,825,645	10/20/1998	Konar et al.	
	133	5,839,654	11/24/1998	Weber	
	134	5,871,526	02/16/1999	Gibbs et al.	
	135	5,911,747	06/15/1999	Gauthier	
	136	5,924,486	07/20/1999	Ehlers et al.	
	137	5,927,380	07/27/1999	Scoccia	
	138	5,931,378	08/03/1999	Schramm	
	139	5,937,940	08/17/1999	Davis, Jr. et al.	
	140	5,937,942	08/17/1999	Bias et al.	
	141	5,944,098	08/31/1999	Jackson	
	142	5,977,964	11/02/1999	Williams et al.	
	143	6,032,867	03/07/2000	Dushane et al.	
	144	6,059,027	05/09/2000	Lake et al.	

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	First Named Inventor	John Douglas Steinberg
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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	145	6,064,310	05/16/2000	Busak et al.	
	146	6,070,110	05/30/2000	Shah et al.	
	147	6,077,158	06/20/2000	Lake et al.	
	148	6,079,626	06/27/2000	Hartman	
	149	6,079,627	06/27/2000	Kettler	
	150	6,082,128	07/04/2000	Lake et al.	
	151	6,089,034	07/18/2000	Lake et al.	
	152	6,098,893	08/08/2000	Berglund et al.	
	153	6,104,967	08/15/2000	Hagen et al.	
	154	6,115,713	09/05/2000	Pascucci et al.	
	155	6,118,099	09/12/2000	Lake et al.	
	156	6,134,511	10/17/2000	Subbarao	
	157	6,134,895	10/24/2000	Poloskey et al.	
	158	6,145,751	11/14/2000	Ahmed	
	159	6,162,184	12/19/2000	Swanson et al.	
	160	6,164,374	12/26/2000	Rhodes et al.	
	161	6,173,902	01/16/2001	Bauer et al.	
	162	6,178,362	01/23/2001	Woolard et al.	
	163	6,206,295	03/27/2001	LaCoste	
	164	6,211,921	04/03/2001	Cherian et al.	
	165	6,213,404	04/10/2001	Dushane et al.	
	166	6,216,956	04/17/2001	Ehlers et al.	
	167	6,223,544	05/01/2001	Seem	
	168	6,241,156	06/05/2001	Kline et al.	
	169	6,249,780	06/19/2001	Mizokawa	
	170	6,254,009	07/03/2001	Proffitt et al.	
	171	6,260,765	07/17/2001	Natale et al.	
	172	6,263,260	07/17/2001	Bodmer et al.	
	173	6,278,909	08/21/2001	Thibeault et al.	

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	First Named Inventor	John Douglas Steinberg
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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	174	6,284,048	09/04/2001	Van Bilsen et al.	
	175	6,286,764	09/11/2001	Garvey et al.	
	176	6,298,285	10/02/2001	Addink et al.	
	177	6,351,693	02/26/2002	Monie	
	178	6,385,510	05/07/2002	Hoog et al.	
	179	6,398,406	06/04/2002	Breiland et al.	
	180	6,400,956	06/02/2002	Richton	
	181	6,400,996	06/04/2002	Hoffberg et al.	
	182	6,402,043	06/11/2002	Cockerill	
	183	6,437,692	08/20/2002	Petite et al.	
	184	6,439,468	08/27/2002	Lambert et al.	
	185	6,449,534	09/10/2002	Stewart	
	186	6,453,687	09/24/2002	Sharood et al.	
	187	6,454,177	09/24/2002	Sasao et al.	
	188	6,478,233	11/12/2002	Shah	
	189	6,480,803	11/12/2002	Pierret et al.	
	190	6,483,906	11/19/2002	Lggulden et al.	
	191	6,491,094	12/10/2002	Rayburn et al.	
	192	6,502,758	01/07/2003	Cottrell	
	193	6,513,723	02/04/2003	Mueller et al.	
	194	6,522,954	02/18/2003	Kummerer et al.	
	195	6,536,675	03/25/2003	Pesko et al.	
	196	6,542,076	04/01/2003	Joao	
	197	6,549,130	04/15/2003	Joao	
	198	6,574,537	06/02/2003	Kipersztok et al.	
	199	6,574,581	06/03/2003	Bohrer et al.	
	200	6,580,950	06/17/2003	Johnson	
	201	6,594,825	07/15/2003	Goldschmidtli et al.	
	202	6,595,430	07/22/2003	Shah	

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	Art Unit	3763
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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	203	6,598,056	07/22/2003	Hull et al.	
	204	6,619,555	09/16/2003	Rosen	
	205	6,622,097	09/16/2003	Hunter	
	206	6,622,115	09/16/2003	Brown et al.	
	207	6,622,925	09/23/2003	Carner et al.	
	208	6,622,926	09/23/2003	Sartain et al.	
	209	6,628,997	09/30/2003	Fox et al.	
	210	6,633,823	10/14/2003	Bartone et al.	
	211	6,636,197	10/21/2003	Goldenberg et al.	
	212	6,643,567	11/04/2003	Kolk et al.	
	213	6,644,098	11/11/2003	Cardinale et al.	
	214	6,644,557	11/11/2003	Jacobs	
	215	6,671,586	12/30/2003	Davis et al.	
	216	6,672,085	01/06/2004	Sangwan et al.	
	217	6,695,218	02/24/2004	Fleckenstein	
	218	6,700,224	03/02/2004	Biskup, Sr.,	
	219	6,726,113	04/27/2004	Guo	
	220	6,731,992	05/04/2004	Ziegler	
	221	6,734,806	05/11/2004	Cratsley	
	222	6,745,581	06/08/2004	King et al.	
	223	6,745,582	06/08/2004	Urbank et al.	
	224	6,755,035	06/29/2004	McNamara et al.	
	225	6,772,052	08/03/2004	Amundsen	
	226	6,778,945	08/17/2004	Chassin et al.	
	227	6,785,592	08/31/2004	Smith	
	228	6,785,630	08/31/2004	Kolk	
	229	6,786,421	09/07/2004	Rosen	
	230	6,789,739	09/14/2004	Rosen	
	231	6,798,341	09/28/2004	Eckel et al.	

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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	232	6,814,299	11/09/2004	Carey	
	233	6,817,321	11/16/2004	Takei et al.	
	234	6,843,201	01/18/2005	Kuznetsov et al.	
	235	6,845,918	01/25/2005	Rotondo	
	236	6,851,470	02/08/2005	Laukhuf	
	237	6,851,621	02/08/2005	Wacker et al.	
	238	6,853,959	02/08/2005	Ikeda et al.	
	239	6,862,892	03/08/2005	Meyer et al.	
	240	6,865,825	03/15/2005	Bailey, Sr. et al.	
	241	6,868,293	03/15/2005	Schurr	
	242	6,868,319	03/15/2005	Kipersztok et al.	
	243	6,874,693	04/05/2005	Radio et al.	
	244	6,882,712	04/19/2005	Iggulden et al.	
	245	6,889,908	05/10/2005	Crippen et al.	
	246	6,891,838	05/10/2005	Petite et al.	
	247	6,909,921	06/21/2005	Bilger	
	248	6,912,429	06/28/2005	Bilger	
	249	6,951,306	10/04/2005	DeLuca	
	250	6,964,174	11/15/2005	Shah	
	251	6,981,383	01/03/2006	Shah et al.	
	252	6,991,029	01/31/2006	Orfield et al.	
	253	7,000,849	02/21/2006	Ashworth et al.	
	254	7,009,493	03/07/2006	Howard	
	255	7,024,283	04/04/2006	Bicknell	
	256	7,028,912	04/18/2006	Rosen	
	257	7,031,880	04/18/2006	Seem et al.	
	258	7,039,532	05/02/2006	Hunter	
	259	7,043,339	05/09/2006	Maeda et al.	
	260	7,055,759	06/06/2006	Wacker, et al.	

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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	261	7,061,393	06/13/2006	Buckingham et al.	
	262	7,063,138	06/20/2006	Salim et al.	
	263	7,072,727	07/04/2006	Davis	
	264	7,076,962	07/18/2006	He et al.	
	265	7,083,109	08/01/2006	Pouchak	
	266	7,085,626	08/01/2006	Harrod et al.	
	267	7,087,443	08/08/2006	Hornberg et al.	
	268	7,089,088	08/08/2006	Terry et al.	
	269	7,099,748	08/29/2006	Rayburn	
	270	7,105,754	09/12/2006	Turner	
	271	7,107,706	09/19/2006	Bailey, Sr. et al.	
	272	7,108,194	09/19/2006	Hankins, II	
	273	7,114,554	10/03/2006	Bergman et al.	
	274	7,130,719	10/31/2006	Ehlers et al.	
	275	7,130,832	10/31/2006	Bannai et al.	
	276	7,131,281	11/07/2006	Salim et al.	
	277	7,140,551	11/28/2006	de Pauw et al.	
	278	7,141,748	11/28/2006	Tanaka et al.	
	279	7,156,318	01/02/2007	Rosen	
	280	7,159,789	01/09/2007	Schwendinger et al.	
	281	7,159,790	01/09/2007	Schwendinger et al.	
	282	7,163,158	01/16/2007	Rossi et al.	
	283	7,167,079	01/23/2007	Smyth et al.	
	284	7,187,986	03/06/2007	Johnson et al.	
	285	7,200,468	04/03/2007	Ruhnke et al.	
	286	7,204,429	04/17/2007	Olney	
	287	7,205,892	04/17/2007	Luebke et al.	
	288	7,206,670	04/17/2007	Pimputkar et al.	
	289	7,215,746	05/08/2007	Iggulden et al.	

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Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	290	7,216,015	05/08/2007	Poth Robert J.	
	291	7,231,424	06/11/2007	Bodin et al.	
	292	7,232,075	06/19/2007	Rosen	
	293	7,232,369	06/19/2007	Karidis et al.	
	294	7,242,988	07/10/2007	Hoffberg et al.	
	295	7,257,397	08/14/2007	Shamoon et al	
	296	7,258,280	08/21/2007	Wolfson	
	297	7,260,823	08/21/2007	Schlack et al.	
	298	7,261,751	08/28/2007	Dutta et al.	
	299	7,264,175	09/04/2007	Schwendinger et al.	
	300	7,275,377	10/02/2007	Kates	
	301	7,287,709	10/30/2007	Proffitt et al.	
	302	7,296,426	11/20/2007	Butler et al.	
	303	7,298,871	11/20/2007	Lee et al.	
	304	7,299,996	11/27/2007	Garrett et al.	
	305	7,302,959	12/04/2007	Gonia	
	306	7,308,322	12/11/2007	Discenzo et al.	
	307	7,316,119	01/08/2008	Allen	
	308	7,320,434	01/22/2008	Suda et al.	
	309	7,333,880	02/19/2008	Brewster et al.	
	310	7,343,226	03/11/2008	Ehlers et al.	
	311	7,354,005	04/08/2008	Carey, et al.	
	312	7,356,384	04/08/2008	Gull et al.	
	313	7,364,093	04/29/2008	Garozzo	
	314	7,392,662	07/01/2008	Gao	
	315	7,395,173	07/01/2008	Kautz et al.	
	316	7,400,942	07/15/2008	Cheng	
	317	7,427,329	09/23/2008	Kuznetsov et al.	
	318	7,451,606	11/18/2008	Harrod	

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	319	7,451,937	11/18/2008	Flood et al.	
	320	7,455,240	11/25/2008	Chapman, Jr. et al.	
	321	7,469,550	12/30/2008	Chapman, Jr. et al.	
	322	7,473,868	01/06/2009	Bohan, Jr. et al.	
	323	7,475,559	01/13/2009	Gleeson	
	324	7,476,020	01/13/2009	Zufferey et al.	
	325	7,483,964	01/27/2009	Jackson et al.	
	326	7,498,576	03/03/2009	Micko	
	327	7,502,768	03/10/2009		
	328	7,509,753	03/31/2009	Nicosia et al.	
	329	7,517,141	04/14/2009	Patel et al.	
	330	7,528,960	05/05/2009	Boesser et al.	
	331	7,539,549	05/26/2009	Discenzo et al.	
	332	7,548,321	06/16/2009	Rinn	
	333	7,555,364	06/30/2009	Poth et al.	
	334	7,558,648	07/07/2009	Hoglund et al.	
	335	7,565,225	07/21/2009	Dushane, et al.	
	336	7,565,813	07/28/2009	Pouchak	
	337	7,571,865	08/11/2009	Nicodem et al.	
	338	7,575,179	08/18/2009	Morrow et al.	
	339	7,575,511	08/18/2009	Haupt et al.	
	340	7,584,899	09/08/2009	de Pauw et al.	
	341	7,590,469	09/15/2009	Grohman	
	342	7,600,694	10/13/2009	Helt et al.	
	343	7,614,567	11/10/2009	Chapman, Jr. et al.	
	344	7,621,140	11/24/2009	Schnell et al.	
	345	7,624,931	12/01/2009	Chapman, Jr. et al.	
	346	7,634,417	12/15/2009	Boyden et al.	
	347	7,634,504	12/15/2009	Amundson	

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PTO/SB/08 Equivalent

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 13 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	348	7,640,077	12/29/2009	Shad	
	349	7,641,126	01/05/2010	Schultz et al.	
	350	7,644,869	01/12/2010	Hoglund et al.	
	351	7,681,630	03/23/2010	Klassen et al.	
	352	7,693,582	04/06/2010	Bergman et al.	
	353	7,702,424	04/20/2010	Cannon et al.	
	354	7,718,291	05/18/2010	Arthur et al.	
	355	7,726,581	06/01/2010	Naujok et al.	
	356	7,735,330	06/15/2010	Richter et al.	
	357	7,758,729	07/20/2010	DeWhitt	
	358	7,763,087	07/27/2010	Hajiaghajani et al.	
	359	7,770,806	08/10/2010	Herzon et al.	
	360	7,778,734	08/17/2010	Oswald et al.	
	361	7,784,704	08/31/2010	Harter	
	362	7,797,958	09/21/2010	Alston et al.	
	363	7,802,618	09/28/2010	Simon, et al.	
	364	7,809,472	10/05/2010	Silva et al.	
	365	7,832,223	11/16/2010	Arshad et al.	
	366	7,845,576	12/07/2010	Siddaramanna et al.	
	367	7,845,824	12/07/2010	Robotham	
	368	7,848,840	12/07/2010	Dao et al.	
	369	7,848,900 (EFACT.005A)	12/07/2010	Steinberg et al.	
	370	7,854,389	12/21/2010	Ahmed	
	371	7,869,904	01/11/2011	Cannon et al.	
	372	7,894,943	02/22/2011	Sloup et al.	
	373	7,904,209	03/08/2011	Podgorny et al.	
	374	7,904,830	03/08/2011	Hoglund et al.	
	375	7,908,116 (EFACT.004A)	03/15/2011	Steinberg et al.	

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	First Named Inventor	John Douglas Steinberg
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SHEET 14 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	376	7,908,117 (EFACT.003A)	03/15/2011	Steinberg et al.	
	377	7,966,945	06/28/2011	Miller et al.	
	378	7,983,795	07/19/2011	Josephson et al.	
	379	7,983,796	07/19/2011	Kassel	
	380	7,992,630	08/09/2011	Springer et al.	
	381	8,010,237 (EFACT.010A)	08/30/2011	Cheung Leo et al.	
	382	8,019,567 (EFACT.006A)	09/13/2011	Steinberg et al.	
	383	8,020,777	09/20/2011	Kates	
	384	8,037,700	10/18/2011	Shah et al.	
	385	8,086,353	12/27/2011	Lindgren et al.	
	386	8,090,477 (EFACT.013A)	01/03/2012	Steinberg	
	387	8,112,181	02/07/2012	Remsburg	
	388	8,117,862	02/21/2012	Helt et al.	
	389	8,131,497 (EFACT.005C1)	03/06/2012	Steinberg et al.	
	390	8,131,506 (EFACT.004C1)	03/06/2012	Steinberg et al.	
	391	8,151,583	04/10/2012	Douglas	
	392	8,155,900	04/10/2012	Adams	
	393	8,160,752	04/17/2012	Weaver et al.	
	394	8,180,492 (EFACT.011A)	05/15/2012	Steinberg	
	395	8,297,526	10/30/2012	Burns et al.	
	396	8,340,826 (EFACT.013C1)	12/25/2012	Steinberg et al.	
	397	8,381,540	02/26/2013	Alston	
	398	8,386,082	02/26/2013	Oswald	
	399	8,393,550	03/12/2013	Simon et al.	
	400	8,412,488 (EFACT.004C2)	04/02/2013	Steinberg et al.	
	401	8,418,530	04/16/2013	Scaringe et al.	
	402	8,423,322 (EFACT.006C1)	04/16/2013	Steinberg et al.	

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	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
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SHEET 15 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	403	8,428,782	04/23/2013	Imes	
	404	8,428,785	04/23/2013	Boucher et al.	
	405	8,457,797	06/04/2013	Imes et al.	
	406	8,498,753 (EFACT.009A)	07/30/2013	Steinberg et al.	
	407	8,505,831	08/13/2013	Simon et al.	
	408	8,556,188 (EFACT.012A)	10/15/2013	Steinberg	
	409	8,583,288	11/12/2013	Rossi et al.	
	410	8,596,083	12/03/2013	Karamanos	
	411	8,596,550 (EFACT.007A)	12/03/2013	Steinberg et al.	
	412	8,600,562	12/03/2013	Oswald	
	413	8,620,460	12/31/2013	Bergman et al.	
	414	8,712,590 (EFACT.013C2)	04/29/2014	Steinberg	
	415	8,738,327 (EFACT.004C3)	05/27/2014	Steinberg et al.	
	416	8,740,100 (EFACT.008A)	06/03/2014	Steinberg	
	417	8,751,186 (EFACT.005C3)	06/10/2014	Steinberg et al.	
	418	8,840,033 (EFACT.012C1)	09/23/2014	Steinberg	
	419	8,850,348	09/30/2014	Fadell et al.	
	420	8,863,540	10/21/2014	Alston et al.	
	421	8,880,231	11/04/2014	Boucher, et al.	
	422	8,886,488 (EFACT.005C2)	11/11/2014	Steinberg et al.	
	423	9,028,308	05/12/2015	Bastow	
	424	9,057,649 (EFACT.006C2)	06/16/2015	Steinberg et al.	
	425	9,100,994	08/04/2015	Orawetz et al.	
	426	9,134,710 (EFACT.010C1)	09/15/2015	Cheung et al.	
	427	9,188,994 (EFACT.013C3)	11/17/2015	Steinberg	
	428	9,194,597 (EFACT.007C1)	11/24/2015	Steinberg et al.	

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	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 16 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	429	9,244,470 (EFACT.011C1)	01/26/2016	Steinberg	
	430	9,279,594 (EFACT.008C1)	03/08/2016	Steinberg	
	431	9,353,965	05/31/2016	Goyal et al.	
	432	9,493,054	11/15/2016		
	433	9,534,805	01/03/2017	Matsuoka et al.	
	434	9,618,223	04/11/2017		
	435	9,632,490	04/25/2017	Grohman et al.	
	436	9,677,777	06/13/2017	Karamanos et al.	
	437	9,709,292 (EFACT.012C2)	07/18/2017	Steinberg	
	438	9,791,839	10/17/2017	Matsuoka et al.	
	439	9,939,333 (EFACT.006C3)	04/10/2018	Steinberg et al.	
	440	9,982,905 (EFACT.008C2)	05/29/2018	Steinberg	
	441	10,316,581	06/11/2019	Nagel et al.	
	442	10,339,232	07/02/2019	Hoff	
	443	10,018,371 (EFACT.007C2)	07/10/2018	Steinberg et al.	
	444	10,048,706 (EFACT.014A)	08/14/2018	Hublou et al.	
	445	10,254,775 (EFACT.010C2)	04/09/2019	Cheung et al.	
	446	10,289,131 (EFACT.011C2)	05/14/2019	Steinberg	
	447	10,393,398 (EFACT.013C5)	08/27/2019	Steinberg	
	448	10,534,382 (EFACT.011C3)	01/14/2020	Steinberg	
	449	10,584,890 (EFACT.012C5)	03/10/2020	Steinberg	
	450	10,612,983 (EFACT.006C4)	04/07/2020	Steinberg et al.	
	451	2001/0010309	08/02/2001	Van Bilsen	
	452	2001/0025349	09/27/2001	Sharood et al.	
	453	2001/0046402	11/29/2001	Hasunuma	
	454	2002/0005435	01/17/2002	Cottrell	

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	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 17 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	455	2002/0072428	06/13/2002	Lin	
	456	2002/0147006	10/10/2002	Coon et al.	
	457	2002/0178047	11/28/2002	Or et al.	
	458	2002/0194824	12/26/2002	Clayton et al.	
	459	2003/0034898	02/20/2003	Shamoon et al.	
	460	2003/0038391	02/27/2003	Meyering et al.	
	461	2003/0038470	02/27/2003	Chernoff et al.	
	462	2003/0040934	02/27/2003	Skidmore et al.	
	463	2003/0042320	03/06/2003	Decker	
	464	2003/0112262	06/19/2003	Adatia et al.	
	465	2003/0131623	07/17/2003	Suppes	
	466	2003/0137396	07/24/2003	Durej et al.	
	467	2003/0140642	07/31/2003	Quilliard et al.	
	468	2003/0171851	09/11/2003	Brickfield et al.	
	469	2003/0216838	11/20/2003	Dudley	
	470	2003/0216839	11/20/2003	Dudley	
	471	2003/0229471	12/11/2003	Guralnik et al.	
	472	2004/0022298	02/05/2004	Gunawardena et al.	
	473	2004/0030531	02/12/2004	Miller et al.	
	474	2004/0034484	02/19/2004	Solomita, JR. et al.	
	475	2004/0041035	03/04/2004	Takei et al.	
	476	2004/0065095	04/08/2004	Osborne et al.	
	477	2004/0067050	04/08/2004	Woodward et al.	
	478	2004/0093968	05/20/2004	Oster	
	479	2004/0117330	06/17/2004	Ehlers et al.	
	480	2004/0122494	06/24/2004	Eggers et al.	
	481	2004/0122559	06/24/2004	Young et al.	
	482	2004/0123550	07/01/2004	Hartman	
	483	2004/0133314	07/08/2004	Ehlers et al.	

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	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 18 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	484	2004/0141875	07/22/2004	Doshi	
	485	2004/0176880	09/09/2004	Obradovich et al.	
	486	2004/0249479	12/09/2004	Shorrock	
	487	2004/0256472	12/23/2004	DeLuca	
	488	2004/0256473	12/23/2004	Hull et al.	
	489	2004/0262410	12/30/2004	Hull	
	490	2005/0011205	01/20/2005	Holmes et al.	
	491	2005/0033707	02/10/2005	Ehlers et al.	
	492	2005/0040247	02/24/2005	Pouchak	
	493	2005/0040943	02/24/2005	Winick	
	494	2005/0080805	04/14/2005	Haeberle et al.	
	495	2005/0087616	04/28/2005	Attridge	
	496	2005/0090915	04/28/2005	Geiwitz	
	497	2005/0116055	06/02/2005	Alles	
	498	2005/0119766	06/02/2005	Amundson et al.	
	499	2005/0119793	06/02/2005	Amundson et al.	
	500	2005/0120012	06/02/2005	Poth et al.	
	501	2005/0124286	06/09/2005	Goldsmith	
	502	2005/0125102	06/09/2005	Nichols et al.	
	503	2005/0149886	07/07/2005	Kaushal et al.	
	504	2005/0156053	07/21/2005	Melink	
	505	2005/0159847	07/21/2005	Shah et al.	
	506	2005/0159924	07/21/2005	Shah et al.	
	507	2005/0171645	08/04/2005	Oswald et al.	
	508	2005/0192915	01/09/2005	Ahmed et al.	
	509	2005/0194455	09/08/2005	Alles	
	510	2005/0194456	09/08/2005	Tessier et al.	
	511	2005/0194457	09/08/2005	Dolan	
	512	2005/0204997	09/22/2005	Fournier	

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Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	513	2005/0222889	10/06/2005	Lai et al.	
	514	2005/0224322	10/13/2005	Kikuya et al.	
	515	2005/0270151	12/08/2005	Winick	
	516	2005/0274712	12/15/2005	Gagas et al.	
	517	2005/0279110	12/22/2005	Zeng et al.	
	518	2005/0279840	12/22/2005	Schwendinger et al.	
	519	2005/0279841	12/22/2005	Schwendinger et al.	
	520	2005/0288822	12/29/2005	Rayburn	
	521	2005/0288822	12/29/2005	Rayburn	
	522	2006/0000919	01/05/2006	Schwendinger et al.	
	523	2006/0012584	01/19/2006	Vassallo et al.	
	524	2006/0020313	01/26/2006	Eggers et al.	
	525	2006/0045105	03/02/2006	Dobosz et al.	
	526	2006/0045800	03/02/2006	Boyden et al.	
	527	2006/0049268	03/09/2006	Weimer et al.	
	528	2006/0065750	03/30/2006	Fairless	
	529	2006/0086112	04/27/2006	Bloemer et al.	
	530	2006/0097063	05/11/2006	Zeevi	
	531	2006/0111816	05/25/2006	Spalink et al.	
	532	2006/0127183	06/15/2006	Bishop, JR.	
	533	2006/0130502	06/22/2006	Wruck et al.	
	534	2006/0133971	06/22/2006	Sun et al.	
	535	2006/0142824	06/29/2006	Zikorus et al.	
	536	2006/0185373	08/24/2006	Butler et al.	
	537	2006/0192021	08/31/2006	Schultz et al.	
	538	2006/0196953	09/07/2006	Simon et al.	
	539	2006/0206220	09/14/2006	Amundson	
	540	2006/0212174	09/21/2006	Garmon et al.	
	541	2006/0214014	09/28/2006	Bash et al.	

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Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	542	2006/0237435	10/26/2006	Nguyen et al.	
	543	2006/0247826	11/02/2006	Green et al.	
	544	2006/0269641	11/30/2006	Atwood et al.	
	545	2006/0283965	12/21/2006	Mueller et al.	
	546	2007/0000908	01/04/2007	Bohan, JR. et al.	
	547	2007/0001830	04/01/2007	Dagci et al.	
	548	2007/0012052	01/18/2007	Butler et al.	
	549	2007/0012307	01/18/2007	Wiker et al.	
	550	2007/0043477	02/22/2007	Ehlers et al.	
	551	2007/0043477	02/22/2007	Elhers et al.	
	552	2007/0043478	02/22/2007	Ehlers et al.	
	553	2007/0044501	03/01/2007	Schnell et al.	
	554	2007/0045430	03/01/2007	Chapman, JR. et al.	
	555	2007/0045431	03/03/2007	Chapman et al.	
	556	2007/0045433	03/01/2007	Chapman, JR. et al.	
	557	2007/0045444	03/01/2007	Gray et al.	
	558	2007/0107450	05/17/2007	Sasao et al.	
	559	2007/0114291	05/24/2007	Pouchak	
	560	2007/0114292	05/24/2007	Breed et al.	
	561	2007/0131782	06/14/2007	Ziehr et al.	
	562	2007/0131786	06/14/2007	Rossi et al.	
	563	2007/0146126	06/28/2007	Wang	
	564	2007/0157639	07/12/2007	Harrod	
	565	2007/0170171	07/26/2007	Shah et al.	
	566	2007/0193716	08/23/2007	Archibald et al.	
	567	2007/0210177	09/13/2007	Karasek	
	568	2007/0228183	10/04/2007	Kennedy et al.	
	569	2007/0241203	10/18/2007	Wagner et al.	
	570	2007/0257120	11/08/2007	Chapman, JR. et al.	

Examiner Signature	/TUNG S LAU/	Date Considered	09/15/2021
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.S.L/

PTO/SB/08 Equivalent

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 21 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	571	2007/0262162	11/15/2007	Karamanos	
	572	2007/0267508	11/22/2007	Hoglund et al.	
	573	2007/0289732	12/20/2007	Pillion et al.	
	574	2008/0014856	01/17/2008	Voit et al.	
	575	2008/0015740	01/17/2008	Osann, JR.	
	576	2008/0032619	02/07/2008	Voit et al.	
	577	2008/0033599	02/07/2008	Aminpour et al.	
	578	2008/0054082	03/06/2008	Evans et al.	
	579	2008/0062127	03/13/2008	Brodersen et al.	
	580	2008/0083234	04/10/2008	Krebs et al.	
	581	2008/0083834	04/10/2008	Krebs et al.	
	582	2008/0097651	04/24/2008	Shah et al.	
	583	2008/0099568	05/01/2008	Nicodem et al.	
	584	2008/0099570	05/01/2008	Krebs et al.	
	585	2008/0173723	07/24/2008	Zhadanovsky	
	586	2008/0177678	07/24/2008	Di Martini et al.	
	587	2008/0178620	07/31/2008	Yelles	
	588	2008/0183307	07/31/2008	Clayton et al.	
	589	2008/0198549	08/21/2008	Rasmussen et al.	
	590	2008/0200110	08/21/2008	Ghosh et al.	
	591	2008/0215240	09/04/2008	Howard et al.	
	592	2008/0217419	09/11/2008	Ehlers et al.	
	593	2008/0223943	09/18/2008	Mulhouse et al.	
	594	2008/0245480	10/09/2008	Kight et al.	
	595	2008/0256967	10/23/2008	Errington	
	596	2008/0257864	10/23/2008	Bencher et al.	
	597	2008/0277486	11/13/2008	Seem et al.	
	598	2008/0277488	11/13/2008	Cockerill	
	599	2008/0281472	11/13/2008	Podgorny et al.	

Examiner Signature /TUNG S LAU/	Date Considered 09/15/2021
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PTO/SB/08 Equivalent

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 22 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	600	2008/0283621	11/20/2008	Quirino, et al.	
	601	2008/0283626	11/20/2008	Aldana et al.	
	602	2008/0290183	11/27/2008	Laberge et al.	
	603	2008/0295764	12/04/2008	Svensson	
	604	2008/0309637	12/18/2008	Lim et al.	
	605	2008/0311842	12/18/2008	Alston et al.	
	606	2008/0314998	12/25/2008	Herzon et al.	
	607	2009/0001180	01/01/2009	Siddaramanna et al.	
	608	2009/0005070	01/01/2009	Forstall et al.	
	609	2009/0008233	01/08/2009	Saomoto	
	610	2009/0013703	01/15/2009	Werner	
	611	2009/0018673	01/15/2009	Dushane et al.	
	612	2009/0024545	01/22/2009	Golden et al.	
	613	2009/0045939	02/19/2009	Holland et al.	
	614	2009/0052859	02/26/2009	Greenberger et al.	
	615	2009/0057426	03/05/2009	Sullivan et al.	
	616	2009/0062970	03/05/2009	Forbes et al.	
	617	2009/0065596	03/12/2009	Seem et al.	
	618	2009/0080925	03/26/2009	Blair et al.	
	619	2009/0099699	04/16/2009	Steinberg et al.	
	620	2009/0125151	05/14/2009	Steinberg et al.	
	621	2009/0140056	06/04/2009	Leen	
	622	2009/0140057	06/04/2009	Leen	
	623	2009/0140060	06/04/2009	Stoner et al.	
	624	2009/0143916	06/04/2009	Boll et al.	
	625	2009/0144015	06/04/2009	Bedard	
	626	2009/0151388	06/18/2009	Platt et al.	
	627	2009/0188985	07/30/2009	Scharing et al.	

Examiner Signature <u>/TING S. LAU/</u>	Date Considered <u>09/15/2021</u>
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 23 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	628	2009/0194395	08/06/2009	Yamada	
	629	2009/0211280	08/27/2009	Alston	
	630	2009/0216382	08/27/2009	Ng	
	631	2009/0229288	09/17/2009	Alston et al.	
	632	2009/0240381	09/24/2009	Lane	
	633	2009/0260377	10/22/2009	Miller et al.	
	634	2009/0261174	10/22/2009	Butler et al.	
	635	2009/0271013	10/29/2009	Chen	
	636	2009/0281667	11/12/2009	Masui et al.	
	637	2009/0283603	11/19/2009	Peterson et al.	
	638	2009/0302994	12/10/2009	Rhee et al.	
	639	2009/0316671	12/24/2009	Rolf et al.	
	640	2010/0019051	01/28/2010	Rosen	
	641	2010/0019052	01/28/2010	Yip	
	642	2010/0025483	02/04/2010	Hoeynck et al.	
	643	2010/0070084	03/18/2010	Steinberg et al.	
	644	2010/0070086	03/18/2010	Harrod et al.	
	645	2010/0070089	03/18/2010	Harrod et al.	
	646	2010/0070093	03/18/2010	Harrod et al.	
	647	2010/0070234	03/18/2010	Steinberg et al.	
	648	2010/0086289	04/08/2010	Johnson et al.	
	649	2010/0107076	04/29/2010	Grohman et al.	
	650	2010/0155490	06/24/2010	Halbur et al.	
	651	2010/0156608	06/24/2010	Bae et al.	
	652	2010/0162285	06/24/2010	Cohen et al.	
	653	2010/0198425	08/05/2010	Donovan	
	654	2010/0211224	08/19/2010	Keeling et al.	
	655	2010/0217549	08/26/2010	Galvin et al.	
	656	2010/0227063	09/09/2010	Amro et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 24 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	657	2010/0235004	09/16/2010	Thind	
	658	2010/0243231	09/30/2010	Rosen	
	659	2010/0250590	09/30/2010	Galvin	
	660	2010/0262298	10/14/2010	Johnson et al.	
	661	2010/0262299	10/14/2010	Cheung et al.	
	662	2010/0280679	11/04/2010	Fildes et al.	
	663	2010/0289643	11/18/2010	Trundle et al.	
	664	2010/0318227	12/16/2010	Steinberg et al.	
	665	2011/0029488	02/03/2011	Fuerst et al.	
	666	2011/0031322	02/10/2011	Zou et al.	
	667	2011/0031323	02/10/2011	Nold et al.	
	668	2011/0046792	02/24/2011	Imes et al.	
	669	2011/0046798	02/24/2011	Imes et al.	
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	671	2011/0046800	02/24/2011	Imes et al.	
	672	2011/0046801	02/24/2011	Imes et al.	
	673	2011/0051823	03/03/2011	Imes et al.	
	674	2011/0054699	03/03/2011	Imes et al.	
	675	2011/0054710	03/03/2011	Imes et al.	
	676	2011/0118857	05/19/2011	Bodnar	
	677	2011/0155354	06/30/2011	Karamanos et al.	
	678	2011/0173542	07/14/2011	Imes et al.	
	679	2011/0202181	08/18/2011	Lee, et al.	
	680	2011/0202185	08/18/2011	Imes et al.	
	681	2011/0214060	09/01/2011	Imes et al.	
	682	2011/0224838	09/15/2011	Imes et al.	
	683	2011/0246898	10/06/2011	Imes et al.	
	684	2011/0253796	10/20/2011	Posa et al.	
	685	2011/0282504	11/17/2011	Besore et al.	

Examiner Signature /TUNG S LAU/	Date Considered 09/15/2021
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PTO/SB/08 Equivalent

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 25 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	686	2011/0290893	12/01/2011	Steinberg	
	687	2011/0307101	12/15/2011	Imes et al.	
	688	2012/0023225	01/26/2012	Imes et al.	
	689	2012/0046859	02/23/2012	Imes et al.	
	690	2012/0064923	03/15/2012	Imes et al.	
	691	2012/0065789	03/15/2012	Scelzi et al.	
	692	2012/0065935	03/15/2012	Steinberg et al.	
	693	2012/0066168	03/15/2012	Fadell et al.	
	694	2012/0072033	03/22/2012	Imes et al.	
	695	2012/0086562	04/12/2012	Steinberg	
	696	2012/0091804	04/19/2012	Altonen et al.	
	697	2012/0093141	04/19/2012	Imes et al.	
	698	2012/0094638	04/19/2012	Shamoon et al.	
	699	2012/0101637	04/26/2012	Imes et al.	
	700	2012/0125592	05/24/2012	Fadell et al.	
	701	2012/0135759	05/31/2012	Imes et al.	
	702	2012/0186774	07/26/2012	Matsuoka et al.	
	703	2012/0203379	08/09/2012	Sloo et al.	
	704	2012/0215725	08/23/2012	Imes et al.	
	705	2012/0221718	08/30/2012	Imes et al.	
	706	2012/0234932	09/20/2012	Okamoto et al.	
	707	2012/0252430	10/04/2012	Imes et al.	
	708	2012/0271576	10/25/2012	Kamel et al.	
	709	2012/0324119	12/20/2012	Imes et al.	
	710	2013/0053054	02/28/2013	Lovitt et al.	
	711	2013/0054758	02/28/2013	Imes et al.	
	712	2013/0054863	02/28/2013	Imes et al.	
	713	2013/0060387	03/07/2013	Imes et al.	
	714	2013/0073094	03/21/2013	Knapton et al.	

Examiner Signature /TUNG S LAU/	Date Considered 09/15/2021
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PTO/SB/08 Equivalent

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 26 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	715	2013/0144453	06/06/2013	Subbloie	
	716	2013/0167035	06/27/2013	Imes et al.	
	717	2013/0173064	07/04/2013	Fadell et al.	
	718	2013/0178985	07/11/2013	Lombard et al.	
	719	2013/0193221	08/01/2013	Buescher et al.	
	720	2013/0226502 EFACT.006C2	08/29/2013	Steinberg et al.	
	721	2013/0269252	10/17/2013	Tsangaris et al.	
	722	2013/0306656	11/21/2013	Eckhoff et al.	
	723	2013/0310989 (EFACT.009C1)	11/21/2013	Steinberg et al.	
	724	2014/0039690 (EFACT.012C1)	02/06/2014	Steinberg	
	725	2014/0058567	02/27/2014	Matsuoka et al.	
	726	2014/0074300	03/13/2014	Shilts et al.	
	727	2014/0207292	07/24/2014	Ramagem	
	728	2014/0229018 (EFACT.013C3)	08/20/2014	Steinberg	
	729	2014/0277795	09/18/2014	Matsuoka et al.	
	730	2014/0316581	10/26/2014	Fadell et al.	
	731	2014/0352340	12/04/2014	Berg et al.	
	732	2015/0025691	01/22/2015	Fadell et al.	
	733	2015/0043615 (EFACT.004C4)	02/12/2015	Steinberg et al.	
	734	2015/0053779	02/26/2015	Adamek et al.	
	735	2015/0120235 (EFACT.005C4)	04/30/2015	Steinberg et al.	
	736	2015/0142180	05/21/2015	Matsuoka et al.	
	737	2015/0159928	06/11/2015	Hancock	
	738	2015/0227846	08/13/2015	Mercer et al.	
	739	2015/0300892	10/22/2015	Malhotra et al.	
	740	2015/0354844	12/10/2015	Kates	
	741	2015/0378373	12/31/2015	Sprinkle et al.	
	742	2016/0047565	02/18/2016	Robinson	

Examiner Signature /TUNG S LAU/	Date Considered 09/15/2021
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PTO/SB/08 Equivalent

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 27 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	743	2016/0097557 (EFACT.013C4)	04/07/2016	Steinberg	
	744	2016/0123689	05/05/2016	Maeda	
	745	2016/0153619	06/02/2016	Frohnappfel	
	746	2016/0195865	07/07/2016	Shiel	
	747	2016/0241538	08/18/2016	Khurana et al.	
	748	2016/0290668	10/06/2016	Taylor et al.	
	749	2016/0290672	10/06/2016	Arensmeier	
	750	2016/0334783	11/17/2016	Simons	
	751	2016/0363337	12/15/2016	Steinberg et al.	
	752	2017/0003200	01/05/2017	McDOWELIL et al.	
	753	2017/0059195	03/02/2017	Weaver et al.	
	754	2017/0123391	05/04/2017	Sinha et al.	
	755	2017/0215434	08/03/2017	Wiker et al.	
	756	2017/0234562	08/17/2017	Ribbich et al.	
	757	2017/0241662	08/24/2017	Steinberg et al.	
	758	2017/0268797	09/21/2017	Mowris et al.	
	759	2017/0322530	11/09/2017	Al-Mohssen et al.	
	760	2017/0328777	11/16/2017	Zeckendorf et al.	
	761	2017/0329357	11/16/2017	Torres et al.	
	762	2017/0336090	11/23/2017	Steinberg	
	763	2018/0058711	03/01/2018	Taplin	
	764	2018/0087793	03/29/2018	Okita et al.	
	765	2018/0087795	03/29/2018	Okita et al.	
	766	2018/0216841	08/02/2018	Steinberg	
	767	2018/0245810	08/30/2018	Berka et al.	
	768	2018/0259400	09/13/2018	Steinberg et al.	
	769	2018/0313567	11/01/2018	Steinberg	
	770	2018/0321093	11/08/2018	Steinberg et al.	
	771	2019/0086106	03/21/2019	Okita et al.	

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	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 28 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	772	2019/0086108	03/21/2019	Okita et al.	
	773	2019/0086109	03/21/2019	Okita et al.	
	774	2019/0086110	03/21/2019	Okita et al.	
	775	2019/0086882	03/21/2019	Okita et al.	
	776	2019/0089194	03/21/2019	Okita et al.	
	777	2019/0137133	05/09/2019	Steinberg et al.	
	778	2019/0186771	06/20/2019	Steinberg et al.	
	779	2019/0187005	06/20/2019	Steinberg et al.	

FOREIGN PATENT DOCUMENTS						
Examiner Initials	Cite No.	Foreign Patent Document Country Code-Number-Kind Code Example: JP 1234567 A1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear	T ¹
	780	DE 19609390 A1	09/04/1997	Vdo Schindling		
	781	EP 0415747 A2	03/06/1991	Shaw et al.		
	782	EP 0434926 A2	07/03/1991	BP.T. S.p.A.		
	783	EP 0720077 A2	07/03/1996	Perry Electric S.r.l.		
	784	EP 0802471 A2	10/22/1997	Graesslin KG		
	785	EP 1065079 A2	01/03/2001	Volkswagen AG		
	786	EP 1102500 A2	05/23/2001	Lucent Technologies Inc.		
	787	EP 1731984 A1	12/13/2006	Siemens Schweiz AG		
	788	EP 2157492 A2	02/24/2010	Bosch GMBH Robert		
	789	EP 2372263 A2	05/10/2011	Mitsubishi Electric Corporation		
	790	GB 2153554 B	06/17/1987	Alexander Electronics Limited		
	791	GB 2212317 A	07/19/1989	AMS IND PLC		
	792	GB 2212317 B	05/27/1992	AMS IND PLC		
	793	GB 2408592 A	06/01/2005	Oswald		
	794	JP 05-189659	07/30/1993	Hitachi Bill Shisetsu Eng. KK.		
	795	JP 2002-087050 A	03/26/2002	Alpine Electronics Inc		

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	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 29 OF 30	Attorney Docket No.	EFACT.006C5

FOREIGN PATENT DOCUMENTS						
Examiner Initials	Cite No.	Foreign Patent Document Country Code-Number-Kind Code Example: JP 1234567 A1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear	T ¹
	796	JP 2004-309015 A	11/04/2004	Toho Gas Kk		
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	Art Unit	3763
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SHEET 30 OF 30	Attorney Docket No.	EFACT.006C5

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CONFIRMATION NO. 1851

SERIAL NUMBER 16/806,779	FILING or 371(c) DATE 03/02/2020 RULE	CLASS 702	GROUP ART UNIT 2862	ATTORNEY DOCKET NO. EFACT.006C5		
APPLICANTS EcoFactor, Inc., Redwood City, CA; /TL/ INVENTORS John Douglas Steinberg, Millbrae, CA; Scott Douglas Hublou, Redwood City, CA; /TL/ ** CONTINUING DATA ***** This application is a CON of 16/374,083 04/03/2019 PAT 10612983 which is a CON of 15/905,251 02/26/2018 ABN which is a DIV of 14/731,221 06/04/2015 PAT 9939333 which is a CON of 13/861,189 04/11/2013 PAT 9057649 /TL/ which is a CON of 13/230,610 09/12/2011 PAT 8423322 which is a CON of 12/211,690 09/16/2008 PAT 8019567 which claims benefit of 60/994,011 09/17/2007 ** FOREIGN APPLICATIONS ***** None /TL/ ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 03/27/2020						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and /TUNG S LAU/ Acknowledged Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY CA	SHEETS DRAWINGS 13	TOTAL CLAIMS 1	INDEPENDENT CLAIMS 1
ADDRESS KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614 UNITED STATES						
TITLE SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM						
FILING FEE RECEIVED 1880	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees			
			☐ 1.16 Fees (Filing)			
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 3 OF 4	Attorney Docket No.	EFACT.006C5

NON PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ¹
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	43	RABL, "Parameter Estimation in Buildings Methods for Dynamic Analysis of Measured Energy Use", Journal of Solar Energy Engineering, Vol. 110, February 1988, 15 pages.	
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	48	RUSSELL, et al, "Artificial Intelligence A Modern Approach", Second Edition, Prentice Hall Series in Artificial Intelligence, 2003, 111 pages, Part 1 of 10.	
	49	RUSSELL, et al, "Artificial Intelligence A Modern Approach", Second Edition, Prentice Hall Series in Artificial Intelligence, 2003, 112 pages, Part 2 of 10.	

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	50	RUSSELL, et al, "Artificial Intelligence A Modern Approach", Second Edition, Prentice Hall Series in Artificial Intelligence, 2003, 112 pages, Part 3 of 10.	
	51	RUSSELL, et al, "Artificial Intelligence A Modern Approach", Second Edition, Prentice Hall Series in Artificial Intelligence, 2003, 112 pages, Part 4 of 10.	
	52	RUSSELL, et al, "Artificial Intelligence A Modern Approach", Second Edition, Prentice Hall Series in Artificial Intelligence, 2003, 112 pages, Part 5 of 10.	
	53	RUSSELL, et al, "Artificial Intelligence A Modern Approach", Second Edition, Prentice Hall Series in Artificial Intelligence, 2003, 112 pages, Part 6 of 10.	
	54	RUSSELL, et al, "Artificial Intelligence A Modern Approach", Second Edition, Prentice Hall Series in Artificial Intelligence, 2003, 112 pages, Part 7 of 10.	
	55	RUSSELL, et al, "Artificial Intelligence A Modern Approach", Second Edition, Prentice Hall Series in Artificial Intelligence, 2003, 112 pages, Part 8 of 10.	
	56	RUSSELL, et al, "Artificial Intelligence A Modern Approach", Second Edition, Prentice Hall Series in Artificial Intelligence, 2003, 112 pages, Part 9 of 10.	
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1. An apparatus for hvac system input power control based on target temperature and method thereof

Provided is an apparatus for controlling input power for a heating, ventilating, and air-conditioning (HVAC) system for a building based on a target temperature. According to the present invention, the processor is able to train an artificial neural network based on a plurality of first training...

CURRENT ASSIGNEES: SEOKYOUNG SYS
KR20190140810A | KOREA APPLICATIONS | 20-DEC-2019

2. An apparatus for hvac system input power control based on target temperature and method thereof

A supply power control device is provided for the building's heating, ventilating, and air-conditioning (HVAC) system based on the target temperature. The apparatus includes a processor and a memory, wherein the processor trains the artificial neural network based on the plurality of first training...

CURRENT ASSIGNEES: SEOKYOUNG SYS
KR102212658B1 | KOREA PATENTS | 105-FEB-2021

3. Adaptive environment control system

This adaptive environment control system provides an HVAC control system that adapts to the continually-changing thermal characteristics of the building in which it operates. The adaptive environment control system periodically estimates the thermal characteristics of the building and uses these...

CURRENT ASSIGNEES: AT & T CORP
US4857798 | US PATENTS | 30-JAN-1990

4. Systems and methods of optimizing hvac control in a building or network of buildings

A system and method for managing all of the HVAC components of a building so they operate like one optimized ecosystem. The system and method optimize HVAC operations by predicting HVAC requirements based historical data, weather forecasts and/or occupancy rates. Historical data includes data...

CURRENT ASSIGNEES: EKAIRBOX AI INC

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systems and methods of optimizing hvac control in a building or network of buildings

A system and method for managing all of the HVAC components of a building so they operate like one optimized ecosystem. The system and method optimize HVAC operations by predicting HVAC requirements

Result #1

PREV

NEXT

Application of artificial neural **network** to **predict** the optimal start time for heating system in **building**

H Yang, M-S Yeo, K-W Kim - *Energy conversion and Management*, 2003 - Elsevier

... Learning is the first necessary step in inducing intelligence to neural **networks** ... The output factor is the time elapsed from the start of the **HVAC** equipment to the time when the **desired temperature** is reached, and the ... 6. Neural **network** architecture employed to **predict** start time ...

☆ 99 Cited by 228 Related articles All 9 versions

Optimization of **HVAC** system energy consumption in a **building** using artificial neural **network** and multi-objective genetic algorithm

P Satrio, TMI Mahlia, N Giannetti, K Saito - ... *Energy Technologies and ...*, 2019 - Elsevier

... 2. **HVAC** system configurations [23] ... performance [25]; liquid desiccant system performance [26]; **building** heating load [27]; indoor air **temperature** and humidity ... An ANN model with multilayer perceptron **network** (MLP) is developed to **predict** annual **building** energy consumption ...

☆ 99 Cited by 69 Related articles All 7 versions

Multi-zone **temperature** prediction in a commercial **building** using artificial neural **network** model

H Huang, L Chen, M Mohammadzadeh... - 2013 10th IEEE ... , 2013 - *ieeexplore.ieee.org*

... Morari, "Use of model predictive control and weather forecasts for energy efficient **building climate control**," *Energy and ...* J. Li, R. Li, G. Poulton, G. James, and J. Wall, "Adaptive hvac zone modeling ... Yang, M.-S. Yeo, and K.-W. Kim, "Application of artificial neural **network** to **predict** ...

☆ 99 Cited by 35 Related articles All 5 versions

Prediction of room **temperature** and relative humidity by autoregressive linear and nonlinear neural **network** models for an open office

G Mustafaraj, G Lowry, J Chen - *Energy and Buildings*, 2011 - Elsevier

... with physical model parameters; and it is easy to use in control schemes for **HVAC** plants ... over recurrent neural **networks** such as Elman **networks**, and feedforward time delay neural **networks** without the feedback loop of the delayed outputs (ie neural **network** finite impulse ...

☆ 99 Cited by 182 Related articles All 5 versions

Prediction of **building's temperature** using neural **networks** models

AE Ruano, EM Crispim, EZE Conosaglio... - ... and Buildings, 2008 - Elsevier

... models, such as neural **networks**, should be used for the on-line control of **HVAC** systems ... As the gymnasium is located in a different **building**, and the Ethernet **network** does not reach this ... The data stored in the school PC is automatic transferred, hourly, via Internet, to a data ...

☆ 99 Cited by 230 Related articles All 9 versions

Development and application of linear ventilation and **temperature** models for indoor environmental **prediction** and **HVAC** systems control

C Ren, GJ Cao - *Sustainable Cities and Society*, 2019 - Elsevier

... Besides, artificial neural **network** (ANN) and contribution ratio of indoor climate (CRI) were also ... 2 displayed the outline of environment chamber (with **HVAC** system) involved in this ... experimental studies for the validation of pollutant concentration and **temperature** were carried ...

☆ 99 Cited by 61 Related articles All 2 versions

A feedforward neural **network** based indoor-**climate control** framework for thermal comfort and energy saving in **buildings**

T Chaudhuri, YC Soh, H Li, L Xie - *Applied energy*, 2019 - Elsevier

... been effectively used in modelling energy consumption including that of **HVAC** systems [29 ... 2.

The proposed indoor-**climate control** framework to **achieve** both thermal comfort of the ... 4. The

single layered feedforward artificial neural **network** (SLFF-ANN) topology for modelling the ...

☆ 22 Cited by 85 Related articles All 7 versions

LSTM-based indoor air **temperature prediction** framework for **HVAC** systems in smart **buildings**

F Mithaa, KK Nguyen, M Azam, A Papachristou ... - *Neural Computing and ...*, 2020 - Springer

... [19] designed a framework named UrbanFM based on deep neural **networks** ... **LSTM network** is

a **RNN** that overcomes the problem of training a recurrent **network** with the ... step **prediction**

approach using LSTM-MISO and LSTM-MIMO architectures in CAV and VAV **HVAC** systems ...

☆ 22 Cited by 11 Related articles All 4 versions

Energy-efficient thermal comfort control in smart **buildings** via deep reinforcement learning

G Gao, J Li, Y Wen - *arXiv preprint arXiv:1901.04693*, 2019 - arxiv.org

... [27] proposed a bilinear model under stochastic uncertainty for **building climate control** while

considering ... In this work, we adopt the deep neural **network** method for **predicting** thermal comfort ...

system, we only consider the overall energy consumption of the **HVAC** system during ...

☆ 22 Cited by 42 Related articles All 4 versions

A neural **network**-based multi-zone modelling approach for predictive control system design in commercial **buildings**

H Huang, L Chen, E Hu - *Energy and buildings*, 2015 - Elsevier

... Ruano et al. [23] incorporated a radial basis function neural **networks** to **build** an ... This paper is

structured as follows: Section 2 describes the **building** and the **HVAC** system used in this study ...

[29]. Fig. 4 shows the energy balance **network** diagram of a double-zone case ...

☆ 22 Cited by 89 Related articles All 5 versions

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	4	"5197666" .pn.	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/09/15 11:32 AM
L2	2	"10612983" .pn.	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/09/15 11:48 AM
L3	0	HVAC WITH network WITH temperature SAME inside SAME outside WITH building AND predict\$3 WITH reach WITH temperature WITH building	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/09/15 12:07 PM
L4	3	HVAC WITH network WITH temperature AND inside SAME outside WITH building AND predict\$3 WITH reach WITH temperature WITH building	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/09/15 12:07 PM
L5	0	HVAC WITH network WITH temperature SAME inside SAME outside WITH building AND reach\$3 WITH temperature WITH building	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/09/15 12:14 PM
L6	377127	G01K 13/00 .ccls.	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/09/15 12:15 PM
L7	6	HVAC WITH temperature AND inside SAME outside WITH building AND predict\$3 WITH reach WITH temperature WITH building	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/09/15 12:15 PM
L8	124	HVAC WITH temperature AND inside SAME outside WITH building AND reach\$4 WITH temperature WITH building	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/09/15 12:15 PM

L9	85	HVAC WITH temperature AND inside SAME outside WITH building AND reach\$4 near3 temperature WITH building	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/09/15 12:16 PM
L10	39	HVAC WITH temperature AND inside SAME outside WITH building AND reach\$4 near3 temperature near3 building	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/09/15 12:16 PM
L11	5	L7 AND L10	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/09/15 12:16 PM
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L18	30	L17 AND L10	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/09/15 12:17 PM
L19	1220999	F24F 2130/10 .ccls.	(US-PGPUB; USPAT; USOCR; FIT (CN, FR,	OR	ON	ON	2021/09/15 12:17 PM

			WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
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L27	118	John near3 Douglas near3 Steinberg .in.	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/09/15 12:22 PM
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PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

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U.S. PATENT DOCUMENTS					
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	1	Appendix A-8 - Cler to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	2	Appendix A-9 - Wedekind to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	3	Appendix A-10 - Katipamula to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	4	Appendix A-11 - Rayburn to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	5	Appendix A-12 - McNulty to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	6	Appendix A-13 - Shah to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	7	Appendix A-14 - Ahmed to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	8	Appendix A-15 - Taniguchi to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	9	Appendix A-16 - Butler to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	10	Appendix B-1 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-Appendix B-1185, March 11, 2020.	
	11	Appendix B-2 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-Appendix B-1185, March 11, 2020.	

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	12	Appendix B-3 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	13	Appendix B-4 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	14	Appendix B-5 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	15	Appendix B-6 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	16	Appendix B-7 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	17	Appendix B-8 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	18	Appendix B-9 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	19	Appendix B-10 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
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	21	Appendix B-12 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	22	Appendix B-13 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	23	Appendix B-14 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	24	Appendix B-15 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
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PTO/SB/08 Equivalent

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 3 OF 3	Attorney Docket No.	EFACT.006C5

NON PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ¹
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	28	Appendix C-4 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix C-1185, March 11, 2020.	
	29	Appendix C-5 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix C-1185, March 11, 2020.	
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	32	Appendix C-8 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix C-1185, March 11, 2020.	
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	53	Appendix A-2 - Ehlers to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	54	Appendix A-3 - Hildebrand to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
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	58	Appendix A-7 - Barnard to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/806,779	03/02/2020	John Douglas Steinberg	EFACT.006C5	1851
20995 7590 06/14/2021 KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614			EXAMINER LAU, TUNG S	
			ART UNIT 2862	PAPER NUMBER
			NOTIFICATION DATE 06/14/2021	DELIVERY MODE 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):

efiling@knobbe.com
jayna.cartee@knobbe.com

<i>Examiner-Initiated Interview Summary</i>	Application No. 16/806,779	Applicant(s) Steinberg et al.		
	Examiner TUNG S LAU	Art Unit 2862	AIA (First Inventor to File) Status No	Page 1 of 1

All Participants (applicant, applicants representative, PTO personnel)	Title	Type
TUNG S LAU	Primary Examiner	Telephonic
John King	Attorney	

Date of Interview: 08 June 2021

Issues Discussed:

Priority Claim(s)

Appears the parent case 16374083 has a third party submission which the applicant is aware of specially WEDEKIND US 5197666, talked about the prior art, no final conclusion

/TUNG S LAU/ Primary Examiner, Art Unit 2862	
Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04 Please further see: MPEP 713.04 Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b) 37 CFR § 1.2 Business to be transacted in writing	

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of 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.



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/806,779	03/02/2020	John Douglas Steinberg	EFACT.006C5

CONFIRMATION NO. 1851

PUBLICATION NOTICE



OC000000121933745

20995
KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

Title:SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM

Publication No.US-2020-0386628-A1

Publication Date:12/10/2020

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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SHEET 2 OF 4	Attorney Docket No.	EFACT.006C5

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T¹ - Place a check mark in this area when an English language Translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 3 OF 4	Attorney Docket No.	EFACT.006C5

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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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ¹
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Examiner Signature	Date Considered
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 4 OF 4	Attorney Docket No.	EFACT.006C5

NON PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ¹
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	53	Appendix A-2 - Ehlers to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	54	Appendix A-3 - Hildebrand to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	55	Appendix A-4 - Oswald to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	56	Appendix A-5 - Riley to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
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Examiner Signature	Date Considered
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INFORMATION DISCLOSURE STATEMENT

First Inventor :	John Douglas Steinberg
App. No. :	16/806,779
Filed :	March 2, 2020
For :	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
Examiner :	Unknown
Art Unit :	3763
Conf. No. :	1851

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

References and Listing

Pursuant to 37 CFR 1.56, an Information Disclosure Statement listing references is provided herewith. Copies of any listed foreign and non-patent literature references are being submitted.

No Disclaimers

To the extent that anything in the Information Disclosure Statement or the listed references could be construed as a disclaimer of any subject matter supported by the present application, Applicant hereby rescinds and retracts such disclaimer.

Timing of Disclosure

This Information Disclosure Statement is being filed before the receipt of a First Office Action on the merits, and presumably no fee is required. If a First Office Action on the merits was mailed before the mailing date of this Statement, the Commissioner is authorized to charge the fee set forth in 37 CFR 1.17(p) to Deposit Account No. 11-1410.

Respectfully submitted,
KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: September 4, 2020

By: John R. King/
John R. King
Registration No. 34,362
Registered Practitioner
(949) 760-0404

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Electronic Acknowledgement Receipt

EFS ID:	40458825
Application Number:	16806779
International Application Number:	
Confirmation Number:	1851
Title of Invention:	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
First Named Inventor/Applicant Name:	John Douglas Steinberg
Customer Number:	20995
Filer:	John R. King/Amy Durrant
Filer Authorized By:	John R. King
Attorney Docket Number:	EFACT.006C5
Receipt Date:	04-SEP-2020
Filing Date:	02-MAR-2020
Time Stamp:	13:25:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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	Multipart Description/PDF files in .zip description				
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Information:					
Total Files Size (in bytes):			261702310		
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.					

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:

KING JOHN R.

KNOBBE, MARTENS, OLSON & BEAR, LLP 2040 MAIN
STREET, 14TH FLOOR IRVINE CA 92614 USA**PCT****NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION**

(PCT Rule 44.1)

Date of mailing
(day/month/year) 12 DECEMBER 2011 (12.12.2011)

Applicant's or agent's file reference

EFACT012WO

FOR FURTHER ACTION See paragraphs 1 and 4 below

International application No.

PCT/US2011/032537

International filing date
(day/month/year)

14 APRIL 2011 (14.04.2011)

Applicant

ECOFACOR, INC. et al

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004, 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ With regard to any protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.**4 Reminders**

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. Following the expiration of 30 months from the priority date, these comments will also be made available to the public.

Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90bis.1 and 90bis.3).

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

Name and mailing address of the ISA/KR

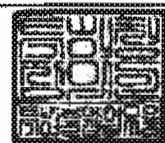
Korean Intellectual Property Office
Government Complex-Daejeon, 189 Cheongsa-ro,
Seo-gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-473-7140

Authorized officer

COMMISSIONER

Telephone No. 82-42-481-8755



RECEIVED
IRVINE INT.

DEC 19 2011

KNOBBE, MARTENS,
OLSON & BEAR, LLP

* Attention

Copies of the documents cited in the international search report can be searched in the following Korean Intellectual Property Office English website for three months from the date of mailing of the international search report.

<http://www.kipo.go.kr/en/> => PCT Services => PCT Services

ID : PCT international application number

PW : 4ZMSLLZF

Inquiries related to PCT International Search Report or Written Opinion prepared by KIPO as an International Searching Authority can be answered not only by KIPO but also through IPKC (Intellectual Property Korea Center), located in Vienna, VA, which functions as a PCT Help Desk for PCT applicants.

Homepage: <http://www.ipkcenter.com>

Email: ipkc@ipkcenter.com

Phone: +1 703 388 1066

Fax: +1 703 388 1084

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference EFACT012WO	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2011/032537	International filing date (day/month/year) 14 APRIL 2011 (14.04.2011)	(Earliest) Priority Date (day/month/year) 26 MAY 2010 (26.05.2010)
Applicant ECOFACOR, INC. et al		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☐ Unity of invention is lacking (See Box No. III)

4. With regard to the title,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 7
☒ as suggested by the applicant.
☐ as selected by this Authority, because the applicant failed to suggest a figure.
☐ as selected by this Authority, because this figure better characterizes the invention.
 b. ☐ none of the figure is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/032537

A. CLASSIFICATION OF SUBJECT MATTER		
F24F 11/02(2006.01); H04Q 9/04(2006.01)		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) F24F 11/02; G06F 17/00; G05D 23/00; F25B 9/00		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean utility models and applications for utility models Japanese utility models and applications for utility models		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) eKOMPASS(KIPO internal) & Keywords: mobile, geographic, location, temperature		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2006-0214014 A1 (CULLEN BASH et al.) 28 September 2006 See Abstract	1-22
A	US 2004-0176880 A1 (MICHAEL L. OBRADOVICH et al.) 09 September 2004 See Column 124-126	1-22
☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 12 DECEMBER 2011 (12.12.2011)		Date of mailing of the international search report 12 DECEMBER 2011 (12.12.2011)
Name and mailing address of the ISA/KR  Korean Intellectual Property Office Government Complex-Daejeon, 189 Cheongsu-ro, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140		Authorized officer JANG, GI JEONG Telephone No. 82-42-481-5498 

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2011/032537

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006-0214014 A1	28.09.2006	US 7640760 B2	05.01.2010
US 2004-0176880 A1	09.09.2004	AT 356734 T	15.04.2007
		AT 399110 T	15.07.2008
		AU 6245398 A	26.08.1998
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		CA 2283843 A1	13.08.1998
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		CA 2596489 A1	13.08.1998
		DE 69837318 D1	16.10.2008
		EP 0956219 A2	17.11.1999
		EP 0956219 A2	30.10.2002
		EP 0956219 A4	24.01.2001
		EP 0956219 B1	25.06.2008
		JP 2002-505631 A	19.02.2002
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		US 06009355A A	28.12.1999
		US 06131060A A	10.10.2000
		US 2001-0020202 A1	06.09.2001
		US 2001-0021887 A1	13.09.2001
		US 2001-0029410 A1	11.10.2001
		US 2001-0038414 A1	08.11.2001
		US 2002-0065585 A1	30.05.2002
		US 2002-0082751 A1	27.06.2002
		US 2002-0082752 A1	27.06.2002
		US 2002-0156555 A1	24.10.2002
		US 2002-0198635 A1	26.12.2002
		US 2003-0004616 A1	02.01.2003
		US 2004-0162645 A1	19.08.2004
		US 2004-0162646 A1	19.08.2004
		US 2005-0165513 A1	28.07.2005
		US 2005-0203674 A1	15.09.2005
		US 2006-0200285 A1	07.09.2006
		US 2010-0175014 A1	08.07.2010
		US 6175782 B1	16.01.2001
		US 6233506 B1	15.05.2001
		US 6282464 B1	28.03.2001
		US 6330497 B1	11.12.2001
		US 6438485 B2	20.08.2002
		US 6449535 B1	10.09.2002
		US 6459961 B1	01.10.2002
		US 6542794 B2	01.04.2003
		US 6542795 B2	01.04.2003
		US 6577928 B2	10.06.2003
		US 6587758 B2	01.07.2003
		US 6587759 B2	01.07.2003
		US 6859687 B2	22.02.2005
		US 6922616 B2	26.07.2005

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2011/032537

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		US 7062362 B2	13.06.2006
		US 7124004 B2	17.10.2006
		US 7171291 B2	30.01.2007
		US 7499778 B2	03.03.2009
		WO 98-34812 A2	13.08.1998
		WO 98-34812A2	13.08.1998
		WO 98-34812A3	05.11.1998
		WO 98-34812A3	05.11.1998

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

KING JOHN R.

KNOBBE, MARTENS, OLSON & BEAR, LLP 2040 MAIN
STREET, 14TH FLOOR IRVINE CA 92614 USA

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing
(day/month/year) 12 DECEMBER 2011 (12.12.2011)

Applicant's or agent's file reference
EFACT012WO

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/US2011/032537

International filing date (day/month/year)

14 APRIL 2011 (14.04.2011)

Priority date(day/month/year)

26 MAY 2010 (26.05.2010)

International Patent Classification (IPC) or both national classification and IPC

F24F 11/02(2006.01); H04Q 9/04(2006.01)

Applicant

ECOFACOR, INC. et al

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/KR
Korean Intellectual Property Office
Government Complex-Daejeon, 189
Cheongsa-ro, Seo-gu, Daejeon 302-
701, Republic of Korea
Facsimile No. 82-42-472-7140

Date of completion of this opinion

12 DECEMBER 2011 (12.12.2011)

Authorized officer

JANG, GI JEONG

Telephone No. 82-42-481-5498



WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2011/032537

Box No. 1 Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))
2. ☐ This opinion has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established on the basis of:
 - a. a sequence listing filed or furnished
 - ☐ on paper
 - ☐ in electronic form
 - b. time of filing or furnishing
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in electronic form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US2011/032537

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-22	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	1-22	YES
	Claims	NONE	NO
Industrial applicability (IA)	Claims	1-22	YES
	Claims	NONE	NO

2. Citations and explanations :

Reference is made to the following documents:

D1: US 2006-0214014 A1 (CULLEN BASH et al.) 28 September 2006

D2: US 2004-0176880 A1 (MICHAEL L. OBRADOVICH et al.) 09 September 2004

1. Novelty and Inventive step

1.1 Claims 1 and 12

The subject matter of claims 1 and 12 differs from the prior art documents of D1-D2 in that the prior art documents do not disclose a adjusting temperature setpoint comprising a mobile location and climate control devices. And it is not obvious to a person skilled in the art by the documents, taken alone or in combination.

Therefore, the subject matter of claims 1 and 12 meets the requirements of PCT Article 33(2) and (3) with respect to novelty and inventive step.

1.2 Claims 2-11 and 13-22

Claims 2-11 and 13-22 are dependent on 1 and 12.

Therefore, the subject matter of claims 2-11 and 13-22 meets the requirements of PCT Article 33(2) and (3) with respect to novelty and inventive step automatically.

2. Industrial Applicability

The subject matter of claims 1-22 is industrially applicable under PCT Article 33(4).

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:

KING, JOHN, R.

KNOBBE, MARTENS, OLSON & BEAR, LLP 2040 MAIN
STREET, 14TH FLOOR IRVINE CA 92614 USA**PCT****NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION**

(PCT Rule 44.1)

Date of mailing
(day/month/year) 06 undefined 2013 (06.08.2013)

Applicant's or agent's file reference

EFACT014WO

FOR FURTHER ACTION See paragraphs 1 and 4 below

International application No.

PCT/US2013/035726International filing date
(day/month/year)

09 April 2013 (09.04.2013)

Applicant

ECOFACOR, INC.

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46).

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 - 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ With regard to any protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. Following the expiration of 30 months from the priority date, these comments will also be made available to the public.

Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90bis.1 and 90bis.3).

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the PCT Applicant's Guide, National Chapters.

Name and mailing address of the ISA/KR

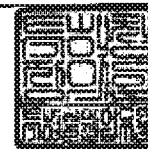
Korean Intellectual Property Office
189 Cheongsa-ro, Seo-gu, Daejeon Metropolitan
City, 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

COMMISSIONER

Telephone No. 82-42-481-8753



Form PCT/ISA/220 (July 2010)

Received Orange County Docketing

AUG 18 2013

Knobbe, Martens, Olson & Bear LLP

* Attention

Copies of the documents cited in the international search report can be searched in the following Korean Intellectual Property Office English website for three months from the date of mailing of the international search report.

<http://www.kipo.go.kr/en/> => PCT Services => PCT Services

ID : PCT international application number

PW : **HZE474K4**

Inquiries related to PCT International Search Report or Written Opinion prepared by KIPO as an International Searching Authority can be answered not only by KIPO but also through IPKC (Intellectual Property Korea Center), located in Vienna, VA, which functions as a PCT Help Desk for PCT applicants.

Homepage: <http://www.ipkcenter.com>

Email: ipkc@ipkcenter.com

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference EFACT014W●	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2013/035726	International filing date (<i>day/month/year</i>) 09 April 2013 (09.04.2013)	(Earliest) Priority Date (<i>day/month/year</i>) 14 June 2012 (14.06.2012)
Applicant ECOFACOR, INC.		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☐ Unity of invention is lacking (See Box No. III)

4. With regard to the title,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 2
☐ as suggested by the applicant.
☒ as selected by this Authority, because the applicant failed to suggest a figure.
☐ as selected by this Authority, because this figure better characterizes the invention.
 b. ☐ none of the figure is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/035726**A. CLASSIFICATION OF SUBJECT MATTER****F24F 11/02(2006.01); G05D 23/00(2006.01); G06Q 50/06(2012.01)**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F24F 11/02; F23N 1/00; F24F 5/00; G07F 15/08; G05D 23/00; G06Q 50/06

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & keywords: HVAC system, running cost, thermostat, and processor

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2010-286218 A (MITSUBISHI HEAVY IND. LTD.) 24 December 2010 See paragraphs [0021]-[0025] and figures 1,2.	1-18
A	KR 10-1999-0070368 A (SAMSUNG ELECTRONICS CO., LTD.) 15 September 1999 See abstract and figures 3,4.	1-18
A	JP 05-189659 A (HITACHI BILL SHISETSU ENG. KK.) 30 July 1993 See abstract and figure 1.	1-18
A	JP 2010-036377 A (MITSUBISHI HEAVY IND. LTD.) 18 February 2010 See abstract and figures 1,2.	1-18
A	US 6786421 B2 (ROSEN, HOWARD) 07 September 2004 See abstract and figure 1A.	1-18



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

05 August 2013 (05.08.2013)

Date of mailing of the international search report

06 undefined 2013 (06.08.2013)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
189 Cheongsu-ro, Seo-gu, Daejeon Metropolitan City,
302-701, Republic of Korea

Facsimile No. +82-42-472-7140

Authorized officer

KIM Jin Ho

Telephone No. +82-42-481-8699



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2013/035726

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2010-286218 A	24/12/2010	None	
KR 10-1999-0070368 A	15/09/1999	CN 1119579 C	27/08/2003
		CN 1226663 A	25/08/1999
		CN 1226663 C	25/08/1999
		JP 03011715 B2	21/02/2000
		JP 11-281122 A	15/10/1999
		US 6145328 A	14/11/2000
JP 05-189659 A	30/07/1993	JP 07001511 B2	11/01/1995
JP 2010-038377 A	18/02/2010	None	
US 6786421 B2	07/09/2004	US 2003-0142121 A1	31/07/2003
		US 2004-0074978 A1	22/04/2004
		US 6824069 B2	30/11/2004
		US 7152806 B1	26/12/2006

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

KING, JOHN, R.

KNOBBE, MARTENS, OLSON & BEAR, LLP 2040 MAIN
STREET, 14TH FLOOR IRVINE CA 92614 USA

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing
(day/month/year) 06 undefined 2013 (06.08.2013)

Applicant's or agent's file reference
EFACT014WO

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/US2013/035726

International filing date (day/month/year)

09 April 2013 (09.04.2013)

Priority date(day/month/year)

14 June 2012 (14.06.2012)

International Patent Classification (IPC) or both national classification and IPC

F24F 11/02(2006.01)i, G05D 23/00(2006.01)i, G06Q 50/06(2012.01)i

Applicant

ECOFACOR, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/KR
Korean Intellectual Property Office
189 Cheongsu-ro, Seo-gu, Daejeon
Metropolitan City, 302-701, Republic of
Korea
Facsimile No. +82-42-472-7140

Date of completion of this opinion

05 August 2013 (05.08.2013)

Authorized officer

KIM Jin Ho

Telephone No. +82-42-481-8699

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2013/035726

Box No. 1 Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of :

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

2. ☐ This opinion has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established on the basis of:

a. a sequence listing filed or furnished

- ☐ on paper
- ☐ in electronic form

b. time of filing or furnishing

- ☐ contained in the international application as filed.
- ☐ filed together with the international application in electronic form.
- ☐ furnished subsequently to this Authority for the purposes of search.

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2013/035726

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-18	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	1-18	YES
	Claims	NONE	NO
Industrial applicability (IA)	Claims	1-18	YES
	Claims	NONE	NO

2. Citations and explanations :

Reference is made to the following documents:

- D1: JP 2010-286218 A (MITSUBISHI HEAVY IND. LTD.) 24 December 2010
D2: KR 10-1999-0070368 A (SAMSUNG ELECTRONICS CO., LTD.) 15 September 1999
D3: JP 05-189659 A (HITACHI BILL SHISETSU ENG. KK.) 30 July 1993
D4: JP 2010-038377 A (MITSUBISHI HEAVY IND. LTD.) 18 February 2010
D5: S 6786421 B2 (ROSEN, HOWARD) 07 September 2004

1. Novelty and Inventive Step

1.1 Independent claim 1

None of the documents D1-D5 teach or fairly suggest a system for allocating the cost of operating an HVAC system comprising a thermostatic controller configured to turn on or off a first component associated with an individual unit of occupancy based on temperature reading from an inside of the individual unit of occupancy. Accordingly, claim 1 is not anticipated by any of the documents, nor is it obvious to a person skilled in the art by the documents, taken alone or in combination. Therefore, claim 1 is novel and involves an inventive step under PCT Article 33(2) and (3).

1.2 Dependent claims 2-9

Claims 2-9 are directly or indirectly dependent on claim 1 and therefore meet the requirements of PCT Article 33(2) and (3).

Continued on Supplemental Box

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US2013/035726

Supplemental Box

In case the space in any of the preceding boxes is not sufficient,
Continuation of: Box No. V

1.3 Independent claim 10

Claim 10 concerns a method for allocating the cost of operating an HVAC system, but it has the same technical features as claim 1. Thus, the same reasoning applies to claim 10. Therefore, claim 10 is novel and involves an inventive step under PCT Article 33(2) and (3).

1.4 Dependent claims 11-18

Claims 11-18 are directly or indirectly dependent on claim 10 and therefore meet the requirements of PCT Article 33(2) and (3).

2. Industrial Applicability

Claims 1-18 meet the requirement of industrial applicability under PCT Article 33(4).

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference EFACT014WO	FOR FURTHER ACTION		See item 4 below
International application No. PCT/US2013/035726	International filing date (<i>day/month/year</i>) 09 April 2013 (09.04.2013)	Priority date (<i>day/month/year</i>) 14 June 2012 (14.06.2012)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant ECOFAC~~T~~OR, INC.			

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 <i>bis</i> .1(a).																								
2.	This REPORT consists of a total of 5 sheets, including this cover sheet. In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.																								
3.	This report contains indications relating to the following items: <table style="width: 100%;"> <tr> <td style="width: 10%; text-align: center;">☒</td> <td style="width: 30%;">Box No. I</td> <td style="width: 80%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;">☒</td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	☒	Box No. I	Basis of the report	☐	Box No. II	Priority	☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	☐	Box No. IV	Lack of unity of invention	☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	☐	Box No. VI	Certain documents cited	☐	Box No. VII	Certain defects in the international application	☐	Box No. VIII	Certain observations on the international application
☒	Box No. I	Basis of the report																							
☐	Box No. II	Priority																							
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability																							
☐	Box No. IV	Lack of unity of invention																							
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement																							
☐	Box No. VI	Certain documents cited																							
☐	Box No. VII	Certain defects in the international application																							
☐	Box No. VIII	Certain observations on the international application																							
4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	<table style="width: 100%;"> <tr> <td style="width: 50%;">Date of issuance of this report 16 December 2014 (16.12.2014)</td> <td style="width: 50%;">Authorized officer Nora Lindner</td> </tr> <tr> <td colspan="2">e-mail: pt05.pct@wipo.int</td> </tr> </table>	Date of issuance of this report 16 December 2014 (16.12.2014)	Authorized officer Nora Lindner	e-mail: pt05.pct@wipo.int	
Date of issuance of this report 16 December 2014 (16.12.2014)	Authorized officer Nora Lindner				
e-mail: pt05.pct@wipo.int					

Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

KING, JOHN, R.

KNOBBE, MARTENS, OLSON & BEAR, LLP 2040 MAIN
STREET, 14TH FLOOR IRVINE CA 92614 USA

PCT

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

(PCT Rule 43bis.1)

Date of mailing (day/month/year) 06 undefined 2013 (06.08.2013)	
Applicant's or agent's file reference EFACT014WO	FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/US2013/035726	International filing date (day/month/year) 09 April 2013 (09.04.2013)
Priority date(day/month/year) 14 June 2012 (14.06.2012)	
International Patent Classification (IPC) or both national classification and IPC F24F 11/02(2006.01)i, G05D 23/00(2006.01)i, G06Q 50/06(2012.01)i	
Applicant ECOFACOR, INC.	

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(h) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

 Name and mailing address of the ISA/KR Korean Intellectual Property Office 189 Cheongsu-ro, Seo-gu, Daejeon Metropolitan City, 302-701, Republic of Korea Facsimile No. +82-42-472-7140	Date of completion of this opinion 05 August 2013 (05.08.2013)	Authorized officer KIM Jin Ho Telephone No. +82-42-481-8699 
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2013/035726

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of :
 - ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:
 - a. a **sequence listing** filed or furnished
 - ☐ on paper
 - ☐ in electronic form
 - b. time of filing or furnishing
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in electronic form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US2013/035726

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-18	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	1-18	YES
	Claims	NONE	NO
Industrial applicability (IA)	Claims	1-18	YES
	Claims	NONE	NO

2. Citations and explanations :

Reference is made to the following documents:

D1: JP 2010-286218 A (MITSUBISHI HEAVY IND. LTD.) 24 December 2010

D2: KR 10-1999-0070368 A (SAMSUNG ELECTRONICS CO., LTD.) 15 September 1999

D3: JP 05-189659 A (HITACHI BILL SHISETSU ENG. KK.) 30 July 1993

D4: JP 2010-038377 A (MITSUBISHI HEAVY IND. LTD.) 18 February 2010

D5: S 6786421 B2 (ROSEN, HOWARD) 07 September 2004

1. Novelty and Inventive Step

1.1 Independent claim 1

None of the documents D1-D5 teach or fairly suggest a system for allocating the cost of operating an HVAC system comprising a thermostatic controller configured to turn on or off a first component associated with an individual unit of occupancy based on temperature reading from an inside of the individual unit of occupancy. Accordingly, claim 1 is not anticipated by any of the documents, nor is it obvious to a person skilled in the art by the documents, taken alone or in combination. Therefore, claim 1 is novel and involves an inventive step under PCT Article 33(2) and (3).

1.2 Dependent claims 2-9

Claims 2-9 are directly or indirectly dependent on claim 1 and therefore meet the requirements of PCT Article 33(2) and (3).

Continued on Supplemental Box

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of : Box No. V

1.3 Independent claim 10

Claim 10 concerns a method for allocating the cost of operating an HVAC system, but it has the same technical features as claim 1. Thus, the same reasoning applies to claim 10. Therefore, claim 10 is novel and involves an inventive step under PCT Article 33(2) and (3).

1.4 Dependent claims 11-18

Claims 11-18 are directly or indirectly dependent on claim 10 and therefore meet the requirements of PCT Article 33(2) and (3).

2. Industrial Applicability

Claims 1-18 meet the requirement of industrial applicability under PCT Article 33(4).

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 1 OF 3	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number <i>Number - Kind Code (if known)</i> Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS						
Examiner Initials	Cite No.	Foreign Patent Document <i>Country Code-Number-Kind Code</i> Example: JP 1234567 A1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear	T ¹

NON PATENT LITERATURE DOCUMENTS			
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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ¹
	1	Appendix A-8 - Cler to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	2	Appendix A-9 - Wedekind to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	3	Appendix A-10 - Katipamula to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	4	Appendix A-11 - Rayburn to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	5	Appendix A-12 - McNulty to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	6	Appendix A-13 - Shah to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	7	Appendix A-14 - Ahmed to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	8	Appendix A-15 - Taniguchi to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	9	Appendix A-16 - Butler to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-1185, March 11, 2020.	
	10	Appendix B-1 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-Appendix B-1185, March 11, 2020.	
	11	Appendix B-2 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TA-Appendix B-1185, March 11, 2020.	

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

T¹ - Place a check mark in this area when an English language Translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 2 OF 3	Attorney Docket No.	EFACT.006C5

NON PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ¹
	12	Appendix B-3 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	13	Appendix B-4 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	14	Appendix B-5 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	15	Appendix B-6 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	16	Appendix B-7 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	17	Appendix B-8 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	18	Appendix B-9 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	19	Appendix B-10 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
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	23	Appendix B-14 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	24	Appendix B-15 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix B-1185, March 11, 2020.	
	25	Appendix C-1 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix C-1185, March 11, 2020.	
	26	Appendix C-2 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix C-1185, March 11, 2020.	

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

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 3 OF 3	Attorney Docket No.	EFACT.006C5

NON PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ¹
	27	Appendix C-3 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix C-1185, March 11, 2020.	
	28	Appendix C-4 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix C-1185, March 11, 2020.	
	29	Appendix C-5 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix C-1185, March 11, 2020.	
	30	Appendix C-6 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix C-1185, March 11, 2020.	
	31	Appendix C-7 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix C-1185, March 11, 2020.	
	32	Appendix C-8 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix C-1185, March 11, 2020.	
	33	Appendix C-9 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix C-1185, March 11, 2020.	
	34	Appendix C-10 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix C-1185, March 11, 2020.	
	35	Appendix C-11 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix C-1185, March 11, 2020.	
	36	Appendix D-1 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix D-1185, March 11, 2020.	
	37	Appendix D-2 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix D-1185, March 11, 2020.	
	38	Appendix D-3 to Respondents' Joint Disclosure of Initial Invalidity Contentions In Response To Individual Interrogatory Nos. 27, 28, 30, 31, 32, 33, 34, Investigation No. 337-TAppendix D-1185, March 11, 2020.	

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Examiner Signature	Date Considered
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T¹ - Place a check mark in this area when an English language Translation is attached.

INFORMATION DISCLOSURE STATEMENT

First Inventor :	John Douglas Steinberg
App. No. :	16/806,779
Filed :	March 2, 2020
For :	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
Examiner :	Unknown
Art Unit :	3763
Conf. No. :	1851

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

References and Listing

Pursuant to 37 CFR 1.56, an Information Disclosure Statement listing references is provided herewith. Copies of any listed foreign and non-patent literature references are being submitted.

No Disclaimers

To the extent that anything in the Information Disclosure Statement or the listed references could be construed as a disclaimer of any subject matter supported by the present application, Applicant hereby rescinds and retracts such disclaimer.

Timing of Disclosure

This Information Disclosure Statement is being filed before the receipt of a First Office Action on the merits, and presumably no fee is required. If a First Office Action on the merits was mailed before the mailing date of this Statement, the Commissioner is authorized to charge the fee set forth in 37 CFR 1.17(p) to Deposit Account No. 11-1410.

Respectfully submitted,
KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: September 4, 2020

By: John R. King/
John R. King
Registration No. 34,362
Registered Practitioner
(949) 760-0404

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Electronic Acknowledgement Receipt

EFS ID:	40459046
Application Number:	16806779
International Application Number:	
Confirmation Number:	1851
Title of Invention:	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
First Named Inventor/Applicant Name:	John Douglas Steinberg
Customer Number:	20995
Filer:	John R. King/Amy Durrant
Filer Authorized By:	John R. King
Attorney Docket Number:	EFACT.006C5
Receipt Date:	04-SEP-2020
Filing Date:	02-MAR-2020
Time Stamp:	13:29:41
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	Appendix-A-8-Cler_to_Respondents_Joint_Disclosure_of_Initial_Invalidity_Contentions.pdf	356522 8b5592502833194b27eb1588a0fdadb4ebc6b57e	no	35

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39		EFACT-006C5_IDS5.pdf	48162 365c232154f6488da96274f94712f6b1cf2922f0	yes	4
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	Document Description		Start	End	
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Warnings:					
Information:					
Total Files Size (in bytes):			20987961		
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.					

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 1 OF 4	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	Document Number <i>Number - Kind Code (if known)</i> Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
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Examiner Initials	Cite No.	Foreign Patent Document <i>Country Code-Number-Kind Code</i> Example: JP 1234567 A1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear	T ¹
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NON PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ¹
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	2	KILICCOTE, et al. "Advanced Control Technologies and Strategies Linking Demand Response and energy Efficiency", Conference Paper, September 1, 2005, 9 pages	
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Examiner Signature	Date Considered
*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

T¹ - Place a check mark in this area when an English language Translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 2 OF 4	Attorney Docket No.	EFACT.006C5

NON PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ¹
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Examiner Signature	Date Considered
*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

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	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 3 OF 4	Attorney Docket No.	EFACT.006C5

NON PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ¹
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Examiner Signature	Date Considered
*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

T¹ - Place a check mark in this area when an English language Translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 4 OF 4	Attorney Docket No.	EFACT.006C5

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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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ¹
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INFORMATION DISCLOSURE STATEMENT

First Inventor :	John Douglas Steinberg
App. No. :	16/806,779
Filed :	March 2, 2020
For :	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
Examiner :	Unknown
Art Unit :	3763
Conf. No. :	1851

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

References and Listing

Pursuant to 37 CFR 1.56, an Information Disclosure Statement listing references is provided herewith. Copies of any listed foreign and non-patent literature references are being submitted.

No Disclaimers

To the extent that anything in the Information Disclosure Statement or the listed references could be construed as a disclaimer of any subject matter supported by the present application, Applicant hereby rescinds and retracts such disclaimer.

Timing of Disclosure

This Information Disclosure Statement is being filed before the receipt of a First Office Action on the merits, and presumably no fee is required. If a First Office Action on the merits was mailed before the mailing date of this Statement, the Commissioner is authorized to charge the fee set forth in 37 CFR 1.17(p) to Deposit Account No. 11-1410.

Respectfully submitted,
KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: September 4, 2020

By: John R. King/
John R. King
Registration No. 34,362
Registered Practitioner
(949) 760-0404

33455030

Electronic Acknowledgement Receipt

EFS ID:	40457359
Application Number:	16806779
International Application Number:	
Confirmation Number:	1851
Title of Invention:	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
First Named Inventor/Applicant Name:	John Douglas Steinberg
Customer Number:	20995
Filer:	John R. King/Amy Durrant
Filer Authorized By:	John R. King
Attorney Docket Number:	EFACT.006C5
Receipt Date:	04-SEP-2020
Filing Date:	02-MAR-2020
Time Stamp:	13:19:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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Total Files Size (in bytes):			489563255		
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.					

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 1 OF 4	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	Document Number <i>Number - Kind Code (if known)</i> Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
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Examiner Initials	Cite No.	Foreign Patent Document <i>Country Code-Number-Kind Code</i> Example: JP 1234567 A1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear	T ¹
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NON PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ¹
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Examiner Signature	Date Considered
*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 2 OF 4	Attorney Docket No.	EFACT.006C5

NON PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ¹
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T¹ - Place a check mark in this area when an English language Translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 3 OF 4	Attorney Docket No.	EFACT.006C5

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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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ¹
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INFORMATION DISCLOSURE STATEMENT

First Inventor :	John Douglas Steinberg
App. No. :	16/806,779
Filed :	March 2, 2020
For :	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
Examiner :	Unknown
Art Unit :	3763
Conf. No. :	1851

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

References and Listing

Pursuant to 37 CFR 1.56, an Information Disclosure Statement listing references is provided herewith. Copies of any listed foreign and non-patent literature references are being submitted.

No Disclaimers

To the extent that anything in the Information Disclosure Statement or the listed references could be construed as a disclaimer of any subject matter supported by the present application, Applicant hereby rescinds and retracts such disclaimer.

Timing of Disclosure

This Information Disclosure Statement is being filed before the receipt of a First Office Action on the merits, and presumably no fee is required. If a First Office Action on the merits was mailed before the mailing date of this Statement, the Commissioner is authorized to charge the fee set forth in 37 CFR 1.17(p) to Deposit Account No. 11-1410.

Respectfully submitted,
KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: September 4, 2020

By: John R. King/
John R. King
Registration No. 34,362
Registered Practitioner
(949) 760-0404

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Electronic Acknowledgement Receipt

EFS ID:	40456568
Application Number:	16806779
International Application Number:	
Confirmation Number:	1851
Title of Invention:	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
First Named Inventor/Applicant Name:	John Douglas Steinberg
Customer Number:	20995
Filer:	John R. King/Amy Durrant
Filer Authorized By:	John R. King
Attorney Docket Number:	EFACT.006C5
Receipt Date:	04-SEP-2020
Filing Date:	02-MAR-2020
Time Stamp:	13:14:21
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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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.					

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SHEET 1 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
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SHEET 2 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	29	4,100,763	07/18/1978	Brody	
	30	4,107,542	08/15/1978	Heiser	
	31	4,129,847	12/12/1978	Teichert	
	32	4,136,732	01/30/1979	Demaray et al.	
	33	4,187,543	02/05/1980	Healey et al.	
	34	4,228,511	10/14/1980	Simcoe et al.	
	35	4,242,592	12/30/1980	Yannone et al.	
	36	4,246,491	01/20/1981	Waldron et al.	
	37	4,253,153	02/24/1981	Bitterli et al.	
	38	4,270,693	06/02/1981	Hayes	
	39	4,314,441	02/09/1982	Yannone et al.	
	40	4,316,577	02/23/1982	Adams et al.	
	41	4,341,345	07/27/1982	Hammer et al.	
	42	4,345,162	08/17/1982	Hammer et al.	
	43	4,373,351	02/15/1983	Stamp, Jr. et al.	
	44	4,390,959	06/28/1983	Cabou	
	45	4,403,644	09/13/1983	Hebert	
	46	4,451,879	05/29/1984	Welch et al.	
	47	4,460,125	07/17/1984	Barker et al.	
	48	4,475,685	10/09/1984	Grimado et al.	
	49	4,487,363	12/11/1984	Parker et al.	
	50	4,500,034	02/19/1985	Reese et al.	
	51	4,522,116	06/11/1985	Tartaglino	
	52	4,522,336	06/11/1985	Culp	
	53	4,655,279	04/07/1987	Harmon	
	54	4,660,759	04/28/1987	Barnard et al.	
	55	4,662,269	05/05/1987	Tartaglino	
	56	4,669,654	06/02/1987	Levine et al.	
	57	4,674,027	06/16/1987	Beckey	

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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	58	4,675,828	06/23/1987	Winston	
	59	4,685,615	08/11/1987	Hart	
	60	4,702,305	10/27/1987	Beckey et al.	
	61	4,702,413	10/27/1987	Beckey et al.	
	62	4,706,882	11/17/1987	Barnard	
	63	4,711,394	12/08/1987	Samuel	
	64	4,751,961	06/21/1988	Levine et al.	
	65	4,768,706	09/06/1988	Parfitt	
	66	4,838,183	06/13/1989	Tsaveras et al.	
	67	4,897,798	01/30/1990	Cler	
	68	4,931,948	06/05/1990	Parker et al.	
	69	4,967,382	10/30/1990	Hall	
	70	5,003,998	04/02/1991	Collett	
	71	5,005,365	04/09/1991	Lynch	
	72	5,037,942	08/06/1991	Hunt et al.	
	73	5,042,265	08/27/	Baldwin et al.	
	74	5,088,645	02/18/1992	Bell	
	75	5,115,967	05/26/1992	Wedekind	
	76	5,124,502	06/23/1992	Nelson et al.	
	77	5,170,935	12/15/1992	Federspiel et al.	
	78	5,197,666	03/30/1993	Wedekind	
	79	5,224,649	07/06/1993	Brown et al.	
	80	5,244,146	09/14/1993	Jefferson et al.	
	81	5,261,481	11/16/1993	Baldwin, et al.	
	82	5,270,952	12/14/1993	Adams et al.	
	83	5,279,458	01/18/1994	Dewolf et al.	
	84	5,289,362	02/22/1994	Liebl et al.	
	85	5,292,280	03/08/1994	Janu et al.	
	86	5,294,047	03/15/1994	Schwer et al.	

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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	87	5,297,838	03/15/1994	Juravich	
	88	5,303,612	04/19/1994	Odom et al.	
	89	5,303,767	04/19/1994	Riley	
	90	5,314,004	05/24/1994	Strand et al.	
	91	5,318,099	06/07/1994	Zivalich, Jr.	
	92	5,322,626	06/21/1994	Frank et al.	
	93	5,348,078	09/20/1994	Dushane et al.	
	94	5,361,983	11/08/1994	Bird	
	95	5,389,120	02/14/1995	Sewell et al.	
	96	5,395,042	03/07/1995	Riley et al.	
	97	5,415,346	05/16/1995	Bishop	
	98	5,427,313	06/27/1995	Davis, Jr. et al.	
	99	5,454,511	10/03/1995	Van Ostrand et al.	
	100	5,462,225	10/31/1995	Massara et al.	
	101	5,485,878	01/23/1996	Derks	
	102	5,485,954	01/23/1996	Guy et al.	
	103	5,497,218	03/05/1996	Amico	
	104	5,511,188	04/23/1996	Pascucci et al.	
	105	5,544,036	08/06/1996	Brown et al.	
	106	5,553,661	09/10/1996	Beyerlein et al.	
	107	5,555,927	09/17/1996	Shah	
	108	5,570,838	11/05/1996	Davis, Jr. et al.	
	109	5,572,438	11/05/1996	Ehlers et al.	
	110	5,603,451	02/18/1997	Helander et al.	
	111	5,621,196	04/15/1997	Nishijima et al.	
	112	5,627,531	05/06/1997	Posso et al.	
	113	5,657,760	08/19/1997	Ying et al.	
	114	5,673,850	10/07/1997	Uptegraph	
	115	5,682,949	11/04/1997	Ratcliffe et al.	

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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	116	5,706,190	01/06/1998	Russ et al.	
	117	5,717,609	02/10/1998	Packa et al.	
	118	5,725,148	03/10/1998	Hartman	
	119	5,729,474	03/17/1998	Hildebrand et al.	
	120	5,755,378	05/26/1998	Dage et al.	
	121	5,761,083	06/02/1998	Brown, Jr., et al.	
	122	5,762,265	06/09/1998	Kitamura et al.	
	123	5,769,314	06/23/1998	Drees et al.	
	124	5,801,940	09/01/1998	Russ et al.	
	125	5,808,602	09/15/1998	Sellers	
	126	5,816,059	10/06/1998	Ficchi, Jr. et al.	
	127	5,816,491	10/06/1998	Berkeley et al.	
	128	5,816,492	10/06/1998	Charles et al.	
	129	5,818,347	10/06/1998	Dolan et al.	
	130	5,822,740	10/13/1998	Haissig et al.	
	131	5,822,997	10/20/1998	Atterbury	
	132	5,825,645	10/20/1998	Konar et al.	
	133	5,839,654	11/24/1998	Weber	
	134	5,871,526	02/16/1999	Gibbs et al.	
	135	5,911,747	06/15/1999	Gauthier	
	136	5,924,486	07/20/1999	Ehlers et al.	
	137	5,927,380	07/27/1999	Scoccia	
	138	5,931,378	08/03/1999	Schramm	
	139	5,937,940	08/17/1999	Davis, Jr. et al.	
	140	5,937,942	08/17/1999	Bias et al.	
	141	5,944,098	08/31/1999	Jackson	
	142	5,977,964	11/02/1999	Williams et al.	
	143	6,032,867	03/07/2000	Dushane et al.	
	144	6,059,027	05/09/2000	Lake et al.	

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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	145	6,064,310	05/16/2000	Busak et al.	
	146	6,070,110	05/30/2000	Shah et al.	
	147	6,077,158	06/20/2000	Lake et al.	
	148	6,079,626	06/27/2000	Hartman	
	149	6,079,627	06/27/2000	Kettler	
	150	6,082,128	07/04/2000	Lake et al.	
	151	6,089,034	07/18/2000	Lake et al.	
	152	6,098,893	08/08/2000	Berglund et al.	
	153	6,104,967	08/15/2000	Hagen et al.	
	154	6,115,713	09/05/2000	Pascucci et al.	
	155	6,118,099	09/12/2000	Lake et al.	
	156	6,134,511	10/17/2000	Subbarao	
	157	6,134,895	10/24/2000	Poloskey et al.	
	158	6,145,751	11/14/2000	Ahmed	
	159	6,162,184	12/19/2000	Swanson et al.	
	160	6,164,374	12/26/2000	Rhodes et al.	
	161	6,173,902	01/16/2001	Bauer et al.	
	162	6,178,362	01/23/2001	Woolard et al.	
	163	6,206,295	03/27/2001	LaCoste	
	164	6,211,921	04/03/2001	Cherian et al.	
	165	6,213,404	04/10/2001	Dushane et al.	
	166	6,216,956	04/17/2001	Ehlers et al.	
	167	6,223,544	05/01/2001	Seem	
	168	6,241,156	06/05/2001	Kline et al.	
	169	6,249,780	06/19/2001	Mizokawa	
	170	6,254,009	07/03/2001	Proffitt et al.	
	171	6,260,765	07/17/2001	Natale et al.	
	172	6,263,260	07/17/2001	Bodmer et al.	
	173	6,278,909	08/21/2001	Thibeault et al.	

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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	174	6,284,048	09/04/2001	Van Bilsen et al.	
	175	6,286,764	09/11/2001	Garvey et al.	
	176	6,298,285	10/02/2001	Addink et al.	
	177	6,351,693	02/26/2002	Monie	
	178	6,385,510	05/07/2002	Hoog et al.	
	179	6,398,406	06/04/2002	Breiland et al.	
	180	6,400,956	06/02/2002	Richton	
	181	6,400,996	06/04/2002	Hoffberg et al.	
	182	6,402,043	06/11/2002	Cockerill	
	183	6,437,692	08/20/2002	Petite et al.	
	184	6,439,468	08/27/2002	Lambert et al.	
	185	6,449,534	09/10/2002	Stewart	
	186	6,453,687	09/24/2002	Sharood et al.	
	187	6,454,177	09/24/2002	Sasao et al.	
	188	6,478,233	11/12/2002	Shah	
	189	6,480,803	11/12/2002	Pierret et al.	
	190	6,483,906	11/19/2002	Lggulden et al.	
	191	6,491,094	12/10/2002	Rayburn et al.	
	192	6,502,758	01/07/2003	Cottrell	
	193	6,513,723	02/04/2003	Mueller et al.	
	194	6,522,954	02/18/2003	Kummerer et al.	
	195	6,536,675	03/25/2003	Pesko et al.	
	196	6,542,076	04/01/2003	Joao	
	197	6,549,130	04/15/2003	Joao	
	198	6,574,537	06/02/2003	Kipersztok et al.	
	199	6,574,581	06/03/2003	Bohrer et al.	
	200	6,580,950	06/17/2003	Johnson	
	201	6,594,825	07/15/2003	Goldschmidtli et al.	
	202	6,595,430	07/22/2003	Shah	

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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	203	6,598,056	07/22/2003	Hull et al.	
	204	6,619,555	09/16/2003	Rosen	
	205	6,622,097	09/16/2003	Hunter	
	206	6,622,115	09/16/2003	Brown et al.	
	207	6,622,925	09/23/2003	Carner et al.	
	208	6,622,926	09/23/2003	Sartain et al.	
	209	6,628,997	09/30/2003	Fox et al.	
	210	6,633,823	10/14/2003	Bartone et al.	
	211	6,636,197	10/21/2003	Goldenberg et al.	
	212	6,643,567	11/04/2003	Kolk et al.	
	213	6,644,098	11/11/2003	Cardinale et al.	
	214	6,644,557	11/11/2003	Jacobs	
	215	6,671,586	12/30/2003	Davis et al.	
	216	6,672,085	01/06/2004	Sangwan et al.	
	217	6,695,218	02/24/2004	Fleckenstein	
	218	6,700,224	03/02/2004	Biskup, Sr.,	
	219	6,726,113	04/27/2004	Guo	
	220	6,731,992	05/04/2004	Ziegler	
	221	6,734,806	05/11/2004	Cratsley	
	222	6,745,581	06/08/2004	King et al.	
	223	6,745,582	06/08/2004	Urbank et al.	
	224	6,755,035	06/29/2004	McNamara et al.	
	225	6,772,052	08/03/2004	Amundsen	
	226	6,778,945	08/17/2004	Chassin et al.	
	227	6,785,592	08/31/2004	Smith	
	228	6,785,630	08/31/2004	Kolk	
	229	6,786,421	09/07/2004	Rosen	
	230	6,789,739	09/14/2004	Rosen	
	231	6,798,341	09/28/2004	Eckel et al.	

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	232	6,814,299	11/09/2004	Carey	
	233	6,817,321	11/16/2004	Takei et al.	
	234	6,843,201	01/18/2005	Kuznetsov et al.	
	235	6,845,918	01/25/2005	Rotondo	
	236	6,851,470	02/08/2005	Laukhuf	
	237	6,851,621	02/08/2005	Wacker et al.	
	238	6,853,959	02/08/2005	Ikeda et al.	
	239	6,862,892	03/08/2005	Meyer et al.	
	240	6,865,825	03/15/2005	Bailey, Sr. et al.	
	241	6,868,293	03/15/2005	Schurr	
	242	6,868,319	03/15/2005	Kipersztok et al.	
	243	6,874,693	04/05/2005	Radio et al.	
	244	6,882,712	04/19/2005	Iggulden et al.	
	245	6,889,908	05/10/2005	Crippen et al.	
	246	6,891,838	05/10/2005	Petite et al.	
	247	6,909,921	06/21/2005	Bilger	
	248	6,912,429	06/28/2005	Bilger	
	249	6,951,306	10/04/2005	DeLuca	
	250	6,964,174	11/15/2005	Shah	
	251	6,981,383	01/03/2006	Shah et al.	
	252	6,991,029	01/31/2006	Orfield et al.	
	253	7,000,849	02/21/2006	Ashworth et al.	
	254	7,009,493	03/07/2006	Howard	
	255	7,024,283	04/04/2006	Bicknell	
	256	7,028,912	04/18/2006	Rosen	
	257	7,031,880	04/18/2006	Seem et al.	
	258	7,039,532	05/02/2006	Hunter	
	259	7,043,339	05/09/2006	Maeda et al.	
	260	7,055,759	06/06/2006	Wacker, et al.	

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Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	261	7,061,393	06/13/2006	Buckingham et al.	
	262	7,063,138	06/20/2006	Salim et al.	
	263	7,072,727	07/04/2006	Davis	
	264	7,076,962	07/18/2006	He et al.	
	265	7,083,109	08/01/2006	Pouchak	
	266	7,085,626	08/01/2006	Harrod et al.	
	267	7,087,443	08/08/2006	Hornberg et al.	
	268	7,089,088	08/08/2006	Terry et al.	
	269	7,099,748	08/29/2006	Rayburn	
	270	7,105,754	09/12/2006	Turner	
	271	7,107,706	09/19/2006	Bailey, Sr. et al.	
	272	7,108,194	09/19/2006	Hankins, II	
	273	7,114,554	10/03/2006	Bergman et al.	
	274	7,130,719	10/31/2006	Ehlers et al.	
	275	7,130,832	10/31/2006	Bannai et al.	
	276	7,131,281	11/07/2006	Salim et al.	
	277	7,140,551	11/28/2006	de Pauw et al.	
	278	7,141,748	11/28/2006	Tanaka et al.	
	279	7,156,318	01/02/2007	Rosen	
	280	7,159,789	01/09/2007	Schwendinger et al.	
	281	7,159,790	01/09/2007	Schwendinger et al.	
	282	7,163,158	01/16/2007	Rossi et al.	
	283	7,167,079	01/23/2007	Smyth et al.	
	284	7,187,986	03/06/2007	Johnson et al.	
	285	7,200,468	04/03/2007	Ruhnke et al.	
	286	7,204,429	04/17/2007	Olney	
	287	7,205,892	04/17/2007	Luebke et al.	
	288	7,206,670	04/17/2007	Pimputkar et al.	
	289	7,215,746	05/08/2007	Iggulden et al.	

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(Multiple sheets used when necessary)	Examiner	Unknown
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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	290	7,216,015	05/08/2007	Poth Robert J.	
	291	7,231,424	06/11/2007	Bodin et al.	
	292	7,232,075	06/19/2007	Rosen	
	293	7,232,369	06/19/2007	Karidis et al.	
	294	7,242,988	07/10/2007	Hoffberg et al.	
	295	7,257,397	08/14/2007	Shamoon et al	
	296	7,258,280	08/21/2007	Wolfson	
	297	7,260,823	08/21/2007	Schlack et al.	
	298	7,261,751	08/28/2007	Dutta et al.	
	299	7,264,175	09/04/2007	Schwendinger et al.	
	300	7,275,377	10/02/2007	Kates	
	301	7,287,709	10/30/2007	Proffitt et al.	
	302	7,296,426	11/20/2007	Butler et al.	
	303	7,298,871	11/20/2007	Lee et al.	
	304	7,299,996	11/27/2007	Garrett et al.	
	305	7,302,959	12/04/2007	Gonia	
	306	7,308,322	12/11/2007	Discenzo et al.	
	307	7,316,119	01/08/2008	Allen	
	308	7,320,434	01/22/2008	Suda et al.	
	309	7,333,880	02/19/2008	Brewster et al.	
	310	7,343,226	03/11/2008	Ehlers et al.	
	311	7,354,005	04/08/2008	Carey, et al.	
	312	7,356,384	04/08/2008	Gull et al.	
	313	7,364,093	04/29/2008	Garozzo	
	314	7,392,662	07/01/2008	Gao	
	315	7,395,173	07/01/2008	Kautz et al.	
	316	7,400,942	07/15/2008	Cheng	
	317	7,427,329	09/23/2008	Kuznetsov et al.	
	318	7,451,606	11/18/2008	Harrod	

Examiner Signature	Date Considered
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	First Named Inventor	John Douglas Steinberg
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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	319	7,451,937	11/18/2008	Flood et al.	
	320	7,455,240	11/25/2008	Chapman, Jr. et al.	
	321	7,469,550	12/30/2008	Chapman, Jr. et al.	
	322	7,473,868	01/06/2009	Bohan, Jr. et al.	
	323	7,475,559	01/13/2009	Gleeson	
	324	7,476,020	01/13/2009	Zufferey et al.	
	325	7,483,964	01/27/2009	Jackson et al.	
	326	7,498,576	03/03/2009	Micko	
	327	7,502,768	03/10/2009		
	328	7,509,753	03/31/2009	Nicosia et al.	
	329	7,517,141	04/14/2009	Patel et al.	
	330	7,528,960	05/05/2009	Boesser et al.	
	331	7,539,549	05/26/2009	Discenzo et al.	
	332	7,548,321	06/16/2009	Rinn	
	333	7,555,364	06/30/2009	Poth et al.	
	334	7,558,648	07/07/2009	Hoglund et al.	
	335	7,565,225	07/21/2009	Dushane, et al.	
	336	7,565,813	07/28/2009	Pouchak	
	337	7,571,865	08/11/2009	Nicodem et al.	
	338	7,575,179	08/18/2009	Morrow et al.	
	339	7,575,511	08/18/2009	Haupt et al.	
	340	7,584,899	09/08/2009	de Pauw et al.	
	341	7,590,469	09/15/2009	Grohman	
	342	7,600,694	10/13/2009	Helt et al.	
	343	7,614,567	11/10/2009	Chapman, Jr. et al.	
	344	7,621,140	11/24/2009	Schnell et al.	
	345	7,624,931	12/01/2009	Chapman, Jr. et al.	
	346	7,634,417	12/15/2009	Boyden et al.	
	347	7,634,504	12/15/2009	Amundson	

Examiner Signature	Date Considered
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Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	348	7,640,077	12/29/2009	Shad	
	349	7,641,126	01/05/2010	Schultz et al.	
	350	7,644,869	01/12/2010	Hoglund et al.	
	351	7,681,630	03/23/2010	Klassen et al.	
	352	7,693,582	04/06/2010	Bergman et al.	
	353	7,702,424	04/20/2010	Cannon et al.	
	354	7,718,291	05/18/2010	Arthur et al.	
	355	7,726,581	06/01/2010	Naujok et al.	
	356	7,735,330	06/15/2010	Richter et al.	
	357	7,758,729	07/20/2010	DeWhitt	
	358	7,763,087	07/27/2010	Hajiaghajani et al.	
	359	7,770,806	08/10/2010	Herzon et al.	
	360	7,778,734	08/17/2010	Oswald et al.	
	361	7,784,704	08/31/2010	Harter	
	362	7,797,958	09/21/2010	Alston et al.	
	363	7,802,618	09/28/2010	Simon, et al.	
	364	7,809,472	10/05/2010	Silva et al.	
	365	7,832,223	11/16/2010	Arshad et al.	
	366	7,845,576	12/07/2010	Siddaramanna et al.	
	367	7,845,824	12/07/2010	Robotham	
	368	7,848,840	12/07/2010	Dao et al.	
	369	7,848,900 (EFACT.005A)	12/07/2010	Steinberg et al.	
	370	7,854,389	12/21/2010	Ahmed	
	371	7,869,904	01/11/2011	Cannon et al.	
	372	7,894,943	02/22/2011	Sloup et al.	
	373	7,904,209	03/08/2011	Podgorny et al.	
	374	7,904,830	03/08/2011	Hoglund et al.	
	375	7,908,116 (EFACT.004A)	03/15/2011	Steinberg et al.	

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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	376	7,908,117 (EFACT.003A)	03/15/2011	Steinberg et al.	
	377	7,966,945	06/28/2011	Miller et al.	
	378	7,983,795	07/19/2011	Josephson et al.	
	379	7,983,796	07/19/2011	Kassel	
	380	7,992,630	08/09/2011	Springer et al.	
	381	8,010,237 (EFACT.010A)	08/30/2011	Cheung Leo et al.	
	382	8,019,567 (EFACT.006A)	09/13/2011	Steinberg et al.	
	383	8,020,777	09/20/2011	Kates	
	384	8,037,700	10/18/2011	Shah et al.	
	385	8,086,353	12/27/2011	Lindgren et al.	
	386	8,090,477 (EFACT.013A)	01/03/2012	Steinberg	
	387	8,112,181	02/07/2012	Remsburg	
	388	8,117,862	02/21/2012	Helt et al.	
	389	8,131,497 (EFACT.005C1)	03/06/2012	Steinberg et al.	
	390	8,131,506 (EFACT.004C1)	03/06/2012	Steinberg et al.	
	391	8,151,583	04/10/2012	Douglas	
	392	8,155,900	04/10/2012	Adams	
	393	8,160,752	04/17/2012	Weaver et al.	
	394	8,180,492 (EFACT.011A)	05/15/2012	Steinberg	
	395	8,297,526	10/30/2012	Burns et al.	
	396	8,340,826 (EFACT.013C1)	12/25/2012	Steinberg et al.	
	397	8,381,540	02/26/2013	Alston	
	398	8,386,082	02/26/2013	Oswald	
	399	8,393,550	03/12/2013	Simon et al.	
	400	8,412,488 (EFACT.004C2)	04/02/2013	Steinberg et al.	
	401	8,418,530	04/16/2013	Scaringe et al.	
	402	8,423,322 (EFACT.006C1)	04/16/2013	Steinberg et al.	

Examiner Signature	Date Considered
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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	403	8,428,782	04/23/2013	Imes	
	404	8,428,785	04/23/2013	Boucher et al.	
	405	8,457,797	06/04/2013	Imes et al.	
	406	8,498,753 (EFACT.009A)	07/30/2013	Steinberg et al.	
	407	8,505,831	08/13/2013	Simon et al.	
	408	8,556,188 (EFACT.012A)	10/15/2013	Steinberg	
	409	8,583,288	11/12/2013	Rossi et al.	
	410	8,596,083	12/03/2013	Karamanos	
	411	8,596,550 (EFACT.007A)	12/03/2013	Steinberg et al.	
	412	8,600,562	12/03/2013	Oswald	
	413	8,620,460	12/31/2013	Bergman et al.	
	414	8,712,590 (EFACT.013C2)	04/29/2014	Steinberg	
	415	8,738,327 (EFACT.004C3)	05/27/2014	Steinberg et al.	
	416	8,740,100 (EFACT.008A)	06/03/2014	Steinberg	
	417	8,751,186 (EFACT.005C3)	06/10/2014	Steinberg et al.	
	418	8,840,033 (EFACT.012C1)	09/23/2014	Steinberg	
	419	8,850,348	09/30/2014	Fadell et al.	
	420	8,863,540	10/21/2014	Alston et al.	
	421	8,880,231	11/04/2014	Boucher, et al.	
	422	8,886,488 (EFACT.005C2)	11/11/2014	Steinberg et al.	
	423	9,028,308	05/12/2015	Bastow	
	424	9,057,649 (EFACT.006C2)	06/16/2015	Steinberg et al.	
	425	9,100,994	08/04/2015	Orawetz et al.	
	426	9,134,710 (EFACT.010C1)	09/15/2015	Cheung et al.	
	427	9,188,994 (EFACT.013C3)	11/17/2015	Steinberg	
	428	9,194,597 (EFACT.007C1)	11/24/2015	Steinberg et al.	

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	First Named Inventor	John Douglas Steinberg
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Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	429	9,244,470 (EFACT.011C1)	01/26/2016	Steinberg	
	430	9,279,594 (EFACT.008C1)	03/08/2016	Steinberg	
	431	9,353,965	05/31/2016	Goyal et al.	
	432	9,493,054	11/15/2016		
	433	9,534,805	01/03/2017	Matsuoka et al.	
	434	9,618,223	04/11/2017		
	435	9,632,490	04/25/2017	Grohman et al.	
	436	9,677,777	06/13/2017	Karamanos et al.	
	437	9,709,292 (EFACT.012C2)	07/18/2017	Steinberg	
	438	9,791,839	10/17/2017	Matsuoka et al.	
	439	9,939,333 (EFACT.006C3)	04/10/2018	Steinberg et al.	
	440	9,982,905 (EFACT.008C2)	05/29/2018	Steinberg	
	441	10,316,581	06/11/2019	Nagel et al.	
	442	10,339,232	07/02/2019	Hoff	
	443	10,018,371 (EFACT.007C2)	07/10/2018	Steinberg et al.	
	444	10,048,706 (EFACT.014A)	08/14/2018	Hublou et al.	
	445	10,254,775 (EFACT.010C2)	04/09/2019	Cheung et al.	
	446	10,289,131 (EFACT.011C2)	05/14/2019	Steinberg	
	447	10,393,398 (EFACT.013C5)	08/27/2019	Steinberg	
	448	10,534,382 (EFACT.011C3)	01/14/2020	Steinberg	
	449	10,584,890 (EFACT.012C5)	03/10/2020	Steinberg	
	450	10,612,983 (EFACT.006C4)	04/07/2020	Steinberg et al.	
	451	2001/0010309	08/02/2001	Van Bilsen	
	452	2001/0025349	09/27/2001	Sharood et al.	
	453	2001/0046402	11/29/2001	Hasunuma	
	454	2002/0005435	01/17/2002	Cottrell	

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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	455	2002/0072428	06/13/2002	Lin	
	456	2002/0147006	10/10/2002	Coon et al.	
	457	2002/0178047	11/28/2002	Or et al.	
	458	2002/0194824	12/26/2002	Clayton et al.	
	459	2003/0034898	02/20/2003	Shamoon et al.	
	460	2003/0038391	02/27/2003	Meyering et al.	
	461	2003/0038470	02/27/2003	Chernoff et al.	
	462	2003/0040934	02/27/2003	Skidmore et al.	
	463	2003/0042320	03/06/2003	Decker	
	464	2003/0112262	06/19/2003	Adatia et al.	
	465	2003/0131623	07/17/2003	Suppes	
	466	2003/0137396	07/24/2003	Durej et al.	
	467	2003/0140642	07/31/2003	Quilliard et al.	
	468	2003/0171851	09/11/2003	Brickfield et al.	
	469	2003/0216838	11/20/2003	Dudley	
	470	2003/0216839	11/20/2003	Dudley	
	471	2003/0229471	12/11/2003	Guralnik et al.	
	472	2004/0022298	02/05/2004	Gunawardena et al.	
	473	2004/0030531	02/12/2004	Miller et al.	
	474	2004/0034484	02/19/2004	Solomita, JR. et al.	
	475	2004/0041035	03/04/2004	Takei et al.	
	476	2004/0065095	04/08/2004	Osborne et al.	
	477	2004/0067050	04/08/2004	Woodward et al.	
	478	2004/0093968	05/20/2004	Oster	
	479	2004/0117330	06/17/2004	Ehlers et al.	
	480	2004/0122494	06/24/2004	Eggers et al.	
	481	2004/0122559	06/24/2004	Young et al.	
	482	2004/0123550	07/01/2004	Hartman	
	483	2004/0133314	07/08/2004	Ehlers et al.	

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Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	484	2004/0141875	07/22/2004	Doshi	
	485	2004/0176880	09/09/2004	Obradovich et al.	
	486	2004/0249479	12/09/2004	Shorrock	
	487	2004/0256472	12/23/2004	DeLuca	
	488	2004/0256473	12/23/2004	Hull et al.	
	489	2004/0262410	12/30/2004	Hull	
	490	2005/0011205	01/20/2005	Holmes et al.	
	491	2005/0033707	02/10/2005	Ehlers et al.	
	492	2005/0040247	02/24/2005	Pouchak	
	493	2005/0040943	02/24/2005	Winick	
	494	2005/0080805	04/14/2005	Haeberle et al.	
	495	2005/0087616	04/28/2005	Attridge	
	496	2005/0090915	04/28/2005	Geiwitz	
	497	2005/0116055	06/02/2005	Alles	
	498	2005/0119766	06/02/2005	Amundson et al.	
	499	2005/0119793	06/02/2005	Amundson et al.	
	500	2005/0120012	06/02/2005	Poth et al.	
	501	2005/0124286	06/09/2005	Goldsmith	
	502	2005/0125102	06/09/2005	Nichols et al.	
	503	2005/0149886	07/07/2005	Kaushal et al.	
	504	2005/0156053	07/21/2005	Melink	
	505	2005/0159847	07/21/2005	Shah et al.	
	506	2005/0159924	07/21/2005	Shah et al.	
	507	2005/0171645	08/04/2005	Oswald et al.	
	508	2005/0192915	01/09/2005	Ahmed et al.	
	509	2005/0194455	09/08/2005	Alles	
	510	2005/0194456	09/08/2005	Tessier et al.	
	511	2005/0194457	09/08/2005	Dolan	
	512	2005/0204997	09/22/2005	Fournier	

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Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	513	2005/0222889	10/06/2005	Lai et al.	
	514	2005/0224322	10/13/2005	Kikuya et al.	
	515	2005/0270151	12/08/2005	Winick	
	516	2005/0274712	12/15/2005	Gagas et al.	
	517	2005/0279110	12/22/2005	Zeng et al.	
	518	2005/0279840	12/22/2005	Schwendinger et al.	
	519	2005/0279841	12/22/2005	Schwendinger et al.	
	520	2005/0288822	12/29/2005	Rayburn	
	521	2005/0288822	12/29/2005	Rayburn	
	522	2006/0000919	01/05/2006	Schwendinger et al.	
	523	2006/0012584	01/19/2006	Vassallo et al.	
	524	2006/0020313	01/26/2006	Eggers et al.	
	525	2006/0045105	03/02/2006	Dobosz et al.	
	526	2006/0045800	03/02/2006	Boyden et al.	
	527	2006/0049268	03/09/2006	Weimer et al.	
	528	2006/0065750	03/30/2006	Fairless	
	529	2006/0086112	04/27/2006	Bloemer et al.	
	530	2006/0097063	05/11/2006	Zeevi	
	531	2006/0111816	05/25/2006	Spalink et al.	
	532	2006/0127183	06/15/2006	Bishop, JR.	
	533	2006/0130502	06/22/2006	Wruck et al.	
	534	2006/0133971	06/22/2006	Sun et al.	
	535	2006/0142824	06/29/2006	Zikorus et al.	
	536	2006/0185373	08/24/2006	Butler et al.	
	537	2006/0192021	08/31/2006	Schultz et al.	
	538	2006/0196953	09/07/2006	Simon et al.	
	539	2006/0206220	09/14/2006	Amundson	
	540	2006/0212174	09/21/2006	Garmon et al.	
	541	2006/0214014	09/28/2006	Bash et al.	

Examiner Signature	Date Considered
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 20 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	542	2006/0237435	10/26/2006	Nguyen et al.	
	543	2006/0247826	11/02/2006	Green et al.	
	544	2006/0269641	11/30/2006	Atwood et al.	
	545	2006/0283965	12/21/2006	Mueller et al.	
	546	2007/0000908	01/04/2007	Bohan, JR. et al.	
	547	2007/0001830	04/01/2007	Dagci et al.	
	548	2007/0012052	01/18/2007	Butler et al.	
	549	2007/0012307	01/18/2007	Wiker et al.	
	550	2007/0043477	02/22/2007	Ehlers et al.	
	551	2007/0043477	02/22/2007	Elhers et al.	
	552	2007/0043478	02/22/2007	Ehlers et al.	
	553	2007/0044501	03/01/2007	Schnell et al.	
	554	2007/0045430	03/01/2007	Chapman, JR. et al.	
	555	2007/0045431	03/03/2007	Chapman et al.	
	556	2007/0045433	03/01/2007	Chapman, JR. et al.	
	557	2007/0045444	03/01/2007	Gray et al.	
	558	2007/0107450	05/17/2007	Sasao et al.	
	559	2007/0114291	05/24/2007	Pouchak	
	560	2007/0114292	05/24/2007	Breed et al.	
	561	2007/0131782	06/14/2007	Ziehr et al.	
	562	2007/0131786	06/14/2007	Rossi et al.	
	563	2007/0146126	06/28/2007	Wang	
	564	2007/0157639	07/12/2007	Harrod	
	565	2007/0170171	07/26/2007	Shah et al.	
	566	2007/0193716	08/23/2007	Archibald et al	
	567	2007/0210177	09/13/2007	Karasek	
	568	2007/0228183	10/04/2007	Kennedy et al.	
	569	2007/0241203	10/18/2007	Wagner et al.	
	570	2007/0257120	11/08/2007	Chapman, JR. et al.	

Examiner Signature	Date Considered
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	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 21 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	571	2007/0262162	11/15/2007	Karamanos	
	572	2007/0267508	11/22/2007	Hoglund et al.	
	573	2007/0289732	12/20/2007	Pillion et al.	
	574	2008/0014856	01/17/2008	Voit et al.	
	575	2008/0015740	01/17/2008	Osann, JR.	
	576	2008/0032619	02/07/2008	Voit et al.	
	577	2008/0033599	02/07/2008	Aminpour et al.	
	578	2008/0054082	03/06/2008	Evans et al.	
	579	2008/0062127	03/13/2008	Brodersen et al.	
	580	2008/0083234	04/10/2008	Krebs et al.	
	581	2008/0083834	04/10/2008	Krebs et al.	
	582	2008/0097651	04/24/2008	Shah et al.	
	583	2008/0099568	05/01/2008	Nicodem et al.	
	584	2008/0099570	05/01/2008	Krebs et al.	
	585	2008/0173723	07/24/2008	Zhadanovsky	
	586	2008/0177678	07/24/2008	Di Martini et al.	
	587	2008/0178620	07/31/2008	Yelles	
	588	2008/0183307	07/31/2008	Clayton et al.	
	589	2008/0198549	08/21/2008	Rasmussen et al.	
	590	2008/0200110	08/21/2008	Ghosh et al.	
	591	2008/0215240	09/04/2008	Howard et al.	
	592	2008/0217419	09/11/2008	Ehlers et al.	
	593	2008/0223943	09/18/2008	Mulhouse et al.	
	594	2008/0245480	10/09/2008	Kight et al.	
	595	2008/0256967	10/23/2008	Errington	
	596	2008/0257864	10/23/2008	Bencher et al.	
	597	2008/0277486	11/13/2008	Seem et al.	
	598	2008/0277488	11/13/2008	Cockerill	
	599	2008/0281472	11/13/2008	Podgorny et al.	

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	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 22 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	600	2008/0283621	11/20/2008	Quirino, et al.	
	601	2008/0283626	11/20/2008	Aldana et al.	
	602	2008/0290183	11/27/2008	Laberge et al.	
	603	2008/0295764	12/04/2008	Svensson	
	604	2008/0309637	12/18/2008	Lim et al.	
	605	2008/0311842	12/18/2008	Alston et al.	
	606	2008/0314998	12/25/2008	Herzon et al.	
	607	2009/0001180	01/01/2009	Siddaramanna et al.	
	608	2009/0005070	01/01/2009	Forstall et al.	
	609	2009/0008233	01/08/2009	Saomoto	
	610	2009/0013703	01/15/2009	Werner	
	611	2009/0018673	01/15/2009	Dushane et al.	
	612	2009/0024545	01/22/2009	Golden et al.	
	613	2009/0045939	02/19/2009	Holland et al.	
	614	2009/0052859	02/26/2009	Greenberger et al.	
	615	2009/0057426	03/05/2009	Sullivan et al.	
	616	2009/0062970	03/05/2009	Forbes et al.	
	617	2009/0065596	03/12/2009	Seem et al.	
	618	2009/0080925	03/26/2009	Blair et al.	
	619	2009/0099699	04/16/2009	Steinberg et al.	
	620	2009/0125151	05/14/2009	Steinberg et al.	
	621	2009/0140056	06/04/2009	Leen	
	622	2009/0140057	06/04/2009	Leen	
	623	2009/0140060	06/04/2009	Stoner et al.	
	624	2009/0143916	06/04/2009	Boll et al.	
	625	2009/0144015	06/04/2009	Bedard	
	626	2009/0151388	06/18/2009	Platt et al.	
	627	2009/0188985	07/30/2009	Scharing et al.	

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	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	628	2009/0194395	08/06/2009	Yamada	
	629	2009/0211280	08/27/2009	Alston	
	630	2009/0216382	08/27/2009	Ng	
	631	2009/0229288	09/17/2009	Alston et al.	
	632	2009/0240381	09/24/2009	Lane	
	633	2009/0260377	10/22/2009	Miller et al.	
	634	2009/0261174	10/22/2009	Butler et al.	
	635	2009/0271013	10/29/2009	Chen	
	636	2009/0281667	11/12/2009	Masui et al.	
	637	2009/0283603	11/19/2009	Peterson et al.	
	638	2009/0302994	12/10/2009	Rhee et al.	
	639	2009/0316671	12/24/2009	Rolf et al.	
	640	2010/0019051	01/28/2010	Rosen	
	641	2010/0019052	01/28/2010	Yip	
	642	2010/0025483	02/04/2010	Hoeynck et al.	
	643	2010/0070084	03/18/2010	Steinberg et al.	
	644	2010/0070086	03/18/2010	Harrod et al.	
	645	2010/0070089	03/18/2010	Harrod et al.	
	646	2010/0070093	03/18/2010	Harrod et al.	
	647	2010/0070234	03/18/2010	Steinberg et al.	
	648	2010/0086289	04/08/2010	Johnson et al.	
	649	2010/0107076	04/29/2010	Grohman et al.	
	650	2010/0155490	06/24/2010	Halbur et al.	
	651	2010/0156608	06/24/2010	Bae et al.	
	652	2010/0162285	06/24/2010	Cohen et al.	
	653	2010/0198425	08/05/2010	Donovan	
	654	2010/0211224	08/19/2010	Keeling et al.	
	655	2010/0217549	08/26/2010	Galvin et al.	
	656	2010/0227063	09/09/2010	Amro et al.	

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	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	657	2010/0235004	09/16/2010	Thind	
	658	2010/0243231	09/30/2010	Rosen	
	659	2010/0250590	09/30/2010	Galvin	
	660	2010/0262298	10/14/2010	Johnson et al.	
	661	2010/0262299	10/14/2010	Cheung et al.	
	662	2010/0280679	11/04/2010	Fildes et al.	
	663	2010/0289643	11/18/2010	Trundle et al.	
	664	2010/0318227	12/16/2010	Steinberg et al.	
	665	2011/0029488	02/03/2011	Fuerst et al.	
	666	2011/0031322	02/10/2011	Zou et al.	
	667	2011/0031323	02/10/2011	Nold et al.	
	668	2011/0046792	02/24/2011	Imes et al.	
	669	2011/0046798	02/24/2011	Imes et al.	
	670	2011/0046799	02/24/2011	Imes et al.	
	671	2011/0046800	02/24/2011	Imes et al.	
	672	2011/0046801	02/24/2011	Imes et al.	
	673	2011/0051823	03/03/2011	Imes et al.	
	674	2011/0054699	03/03/2011	Imes et al.	
	675	2011/0054710	03/03/2011	Imes et al.	
	676	2011/0118857	05/19/2011	Bodnar	
	677	2011/0155354	06/30/2011	Karamanos et al.	
	678	2011/0173542	07/14/2011	Imes et al.	
	679	2011/0202181	08/18/2011	Lee, et al.	
	680	2011/0202185	08/18/2011	Imes et al.	
	681	2011/0214060	09/01/2011	Imes et al.	
	682	2011/0224838	09/15/2011	Imes et al.	
	683	2011/0246898	10/06/2011	Imes et al.	
	684	2011/0253796	10/20/2011	Posa et al.	
	685	2011/0282504	11/17/2011	Besore et al.	

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	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	686	2011/0290893	12/01/2011	Steinberg	
	687	2011/0307101	12/15/2011	Imes et al.	
	688	2012/0023225	01/26/2012	Imes et al.	
	689	2012/0046859	02/23/2012	Imes et al.	
	690	2012/0064923	03/15/2012	Imes et al.	
	691	2012/0065789	03/15/2012	Scelzi et al.	
	692	2012/0065935	03/15/2012	Steinberg et al.	
	693	2012/0066168	03/15/2012	Fadell et al.	
	694	2012/0072033	03/22/2012	Imes et al.	
	695	2012/0086562	04/12/2012	Steinberg	
	696	2012/0091804	04/19/2012	Altonen et al.	
	697	2012/0093141	04/19/2012	Imes et al.	
	698	2012/0094638	04/19/2012	Shamoon et al.	
	699	2012/0101637	04/26/2012	Imes et al.	
	700	2012/0125592	05/24/2012	Fadell et al.	
	701	2012/0135759	05/31/2012	Imes et al.	
	702	2012/0186774	07/26/2012	Matsuoka et al.	
	703	2012/0203379	08/09/2012	Sloo et al.	
	704	2012/0215725	08/23/2012	Imes et al.	
	705	2012/0221718	08/30/2012	Imes et al.	
	706	2012/0234932	09/20/2012	Okamoto et al.	
	707	2012/0252430	10/04/2012	Imes et al.	
	708	2012/0271576	10/25/2012	Kamel et al.	
	709	2012/0324119	12/20/2012	Imes et al.	
	710	2013/0053054	02/28/2013	Lovitt et al.	
	711	2013/0054758	02/28/2013	Imes et al.	
	712	2013/0054863	02/28/2013	Imes et al.	
	713	2013/0060387	03/07/2013	Imes et al.	
	714	2013/0073094	03/21/2013	Knapton et al.	

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	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 26 OF 30	Attorney Docket No.	EFACT.006C5

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	715	2013/0144453	06/06/2013	Subbloie	
	716	2013/0167035	06/27/2013	Imes et al.	
	717	2013/0173064	07/04/2013	Fadell et al.	
	718	2013/0178985	07/11/2013	Lombard et al.	
	719	2013/0193221	08/01/2013	Buescher et al.	
	720	2013/0226502 EFACT.006C2	08/29/2013	Steinberg et al.	
	721	2013/0269252	10/17/2013	Tsangaris et al.	
	722	2013/0306656	11/21/2013	Eckhoff et al.	
	723	2013/0310989 (EFACT.009C1)	11/21/2013	Steinberg et al.	
	724	2014/0039690 (EFACT.012C1)	02/06/2014	Steinberg	
	725	2014/0058567	02/27/2014	Matsuoka et al.	
	726	2014/0074300	03/13/2014	Shilts et al.	
	727	2014/0207292	07/24/2014	Ramagem	
	728	2014/0229018 (EFACT.013C3)	08/20/2014	Steinberg	
	729	2014/0277795	09/18/2014	Matsuoka et al.	
	730	2014/0316581	10/26/2014	Fadell et al.	
	731	2014/0352340	12/04/2014	Berg et al.	
	732	2015/0025691	01/22/2015	Fadell et al.	
	733	2015/0043615 (EFACT.004C4)	02/12/2015	Steinberg et al.	
	734	2015/0053779	02/26/2015	Adamek et al.	
	735	2015/0120235 (EFACT.005C4)	04/30/2015	Steinberg et al.	
	736	2015/0142180	05/21/2015	Matsuoka et al.	
	737	2015/0159928	06/11/2015	Hancock	
	738	2015/0227846	08/13/2015	Mercer et al.	
	739	2015/0300892	10/22/2015	Malhotra et al.	
	740	2015/0354844	12/10/2015	Kates	
	741	2015/0378373	12/31/2015	Sprinkle et al.	
	742	2016/0047565	02/18/2016	Robinson	

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	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	743	2016/0097557 (EFACT.013C4)	04/07/2016	Steinberg	
	744	2016/0123689	05/05/2016	Maeda	
	745	2016/0153619	06/02/2016	Frohnappfel	
	746	2016/0195865	07/07/2016	Shiel	
	747	2016/0241538	08/18/2016	Khurana et al.	
	748	2016/0290668	10/06/2016	Taylor et al.	
	749	2016/0290672	10/06/2016	Arensmeier	
	750	2016/0334783	11/17/2016	Simons	
	751	2016/0363337	12/15/2016	Steinberg et al.	
	752	2017/0003200	01/05/2017	McDOWELIL et al.	
	753	2017/0059195	03/02/2017	Weaver et al.	
	754	2017/0123391	05/04/2017	Sinha et al.	
	755	2017/0215434	08/03/2017	Wiker et al.	
	756	2017/0234562	08/17/2017	Ribbich et al.	
	757	2017/0241662	08/24/2017	Steinberg et al.	
	758	2017/0268797	09/21/2017	Mowris et al.	
	759	2017/0322530	11/09/2017	Al-Mohssen et al.	
	760	2017/0328777	11/16/2017	Zeckendorf et al.	
	761	2017/0329357	11/16/2017	Torres et al.	
	762	2017/0336090	11/23/2017	Steinberg	
	763	2018/0058711	03/01/2018	Taplin	
	764	2018/0087793	03/29/2018	Okita et al.	
	765	2018/0087795	03/29/2018	Okita et al.	
	766	2018/0216841	08/02/2018	Steinberg	
	767	2018/0245810	08/30/2018	Berka et al.	
	768	2018/0259400	09/13/2018	Steinberg et al.	
	769	2018/0313567	11/01/2018	Steinberg	
	770	2018/0321093	11/08/2018	Steinberg et al.	
	771	2019/0086106	03/21/2019	Okita et al.	

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	First Named Inventor	John Douglas Steinberg
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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number Number - Kind Code (if known) Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	772	2019/0086108	03/21/2019	Okita et al.	
	773	2019/0086109	03/21/2019	Okita et al.	
	774	2019/0086110	03/21/2019	Okita et al.	
	775	2019/0086882	03/21/2019	Okita et al.	
	776	2019/0089194	03/21/2019	Okita et al.	
	777	2019/0137133	05/09/2019	Steinberg et al.	
	778	2019/0186771	06/20/2019	Steinberg et al.	
	779	2019/0187005	06/20/2019	Steinberg et al.	

FOREIGN PATENT DOCUMENTS						
Examiner Initials	Cite No.	Foreign Patent Document Country Code-Number-Kind Code Example: JP 1234567 A1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear	T ¹
	780	DE 19609390 A1	09/04/1997	Vdo Schindling		
	781	EP 0415747 A2	03/06/1991	Shaw et al.		
	782	EP 0434926 A2	07/03/1991	BP.T. S.p.A.		
	783	EP 0720077 A2	07/03/1996	Perry Electric S.r.l.		
	784	EP 0802471 A2	10/22/1997	Graesslin KG		
	785	EP 1065079 A2	01/03/2001	Volkswagen AG		
	786	EP 1102500 A2	05/23/2001	Lucent Technologies Inc.		
	787	EP 1731984 A1	12/13/2006	Siemens Schweiz AG		
	788	EP 2157492 A2	02/24/2010	Bosch GMBH Robert		
	789	EP 2372263 A2	05/10/2011	Mitsubishi Electric Corporation		
	790	GB 2153554 B	06/17/1987	Alexander Electronics Limited		
	791	GB 2212317 A	07/19/1989	AMS IND PLC		
	792	GB 2212317 B	05/27/1992	AMS IND PLC		
	793	GB 2408592 A	06/01/2005	Oswald		
	794	JP 05-189659	07/30/1993	Hitachi Bill Shisetsu Eng. KK.		
	795	JP 2002-087050 A	03/26/2002	Alpine Electronics Inc		

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

T¹ - Place a check mark in this area when an English language Translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 29 OF 30	Attorney Docket No.	EFACT.006C5

FOREIGN PATENT DOCUMENTS						
Examiner Initials	Cite No.	Foreign Patent Document Country Code-Number-Kind Code Example: JP 1234567 A1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear	T ¹
	796	JP 2004-309015 A	11/04/2004	Toho Gas Kk		
	797	JP 2010-038377	02/18/2010	Mitsubishi Heavy Ind. Ltd.		
	798	JP 2010-286218	12/24/2010	Mitsubishi Heavy Ind. Ltd.		
	799	JPS 59-106311	07/17/1984	Nippon Denso Co.		
	800	KR 10-1994-0011902	06/22/1994	Koryo Digital Elect. Co.		
	801	KR 10-1999-0070368	09/15/1999	Samsung Electronics Co. Ltd.		
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	805	WO 02/048851 A2	06/20/2002	Honeywell International Inc.		
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	821	WO 2012/024534 (EFACT.013WO)	02/23/2012	EcoFactor, Inc.		
	822	WO 2013/187996	12/19/2013	EcoFactor, Inc.		

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

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	16/806,779
	Filing Date	March 2, 2020
	First Named Inventor	John Douglas Steinberg
	Art Unit	3763
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 30 OF 30	Attorney Docket No.	EFACT.006C5

NON PATENT LITERATURE DOCUMENTS			
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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ¹
	823	100 Years of Programmable Thermostats, www.prothermostats.com, 2016, 3 pages.	
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Examiner Signature	Date Considered
*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

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INFORMATION DISCLOSURE STATEMENT

First Inventor :	John Douglas Steinberg
App. No. :	16/806,779
Filed :	March 2, 2020
For :	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
Examiner :	Unknown
Art Unit :	3763
Conf. No. :	1851

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

References and Listing

Pursuant to 37 CFR 1.56, an Information Disclosure Statement listing references is provided herewith. Copies of any listed foreign and non-patent literature references are being submitted.

No Disclaimers

To the extent that anything in the Information Disclosure Statement or the listed references could be construed as a disclaimer of any subject matter supported by the present application, Applicant hereby rescinds and retracts such disclaimer.

Timing of Disclosure

This Information Disclosure Statement is being filed before the receipt of a First Office Action on the merits, and presumably no fee is required. If a First Office Action on the merits was mailed before the mailing date of this Statement, the Commissioner is authorized to charge the fee set forth in 37 CFR 1.17(p) to Deposit Account No. 11-1410.

Respectfully submitted,
KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: September 4, 2020

By: John R. King/
John R. King
Registration No. 34,362
Registered Practitioner
(949) 760-0404

33455030

Electronic Acknowledgement Receipt

EFS ID:	40454200
Application Number:	16806779
International Application Number:	
Confirmation Number:	1851
Title of Invention:	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
First Named Inventor/Applicant Name:	John Douglas Steinberg
Customer Number:	20995
Filer:	John R. King/Amy Durrant
Filer Authorized By:	John R. King
Attorney Docket Number:	EFACT.006C5
Receipt Date:	04-SEP-2020
Filing Date:	02-MAR-2020
Time Stamp:	13:09:35
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

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	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
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Information:					
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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.					

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/806,779	
APPLICATION AS FILED - PART I							
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760
TOTAL CLAIMS (37 CFR 1.16(j))	1	minus 20 = *			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1	minus 3 = *				x 460 =	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
			TOTAL			TOTAL	1720
* If the difference in column 1 is less than zero, enter "0" in column 2.							
APPLICATION AS AMENDED - PART II							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	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))					OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	
			TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x =	OR	x =
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	Application Size Fee (37 CFR 1.16(s))					OR	
	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.							



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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
16/806,779	03/02/2020	3763	1880	EFACT.006C5	1	1

CONFIRMATION NO. 1851

UPDATED FILING RECEIPT

20995
KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614



Date Mailed: 09/02/2020

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

John Douglas Steinberg, Millbrae, CA;
Scott Douglas Hublou, Redwood City, CA;

Applicant(s)

EcoFactor, Inc., Redwood City, CA;

Power of Attorney: The patent practitioners associated with Customer Number 20995

Domestic Priority data as claimed by applicant

This application is a CON of 16/374,083 04/03/2019 PAT 10612983
which is a CON of 15/905,251 02/26/2018 ABN
which is a DIV of 14/731,221 06/04/2015 PAT 9939333
which is a CON of 13/861,189 04/11/2013 PAT 9057649
which is a CON of 13/230,610 09/12/2011 PAT 8423322
which is a CON of 12/211,690 09/16/2008 PAT 8019567
which claims benefit of 60/994,011 09/17/2007

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 03/27/2020

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/806,779**

Projected Publication Date: 12/10/2020

Non-Publication Request: No

Early Publication Request: No

Title

SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM

Preliminary Class

236

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

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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 Assets Control, 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.

RESPONSE TO FORMALITIES NOTICE

Inventor : John Douglas Steinberg
App. No. : 16/806,779
Filed : March 2, 2020
For : SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE
EFFICIENCY OF AN HVAC SYSTEM
Art Unit : 3763
Conf No. : 1851

**Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**

Dear Commissioner:

The above-captioned application was filed lacking at least one item that would advance the application to examination. Enclosed in compliance with 37 CFR 1.53(f) are the following:

- (X) Rescission of Any Prior Disclaimers and Request to Revisit Art.
- (X) Fees will be paid via EFS Web. Any extension of time will be requested by payment of the appropriate extension fee.

The Commissioner is hereby authorized to charge any additional fees which may be required, now or in the future, or credit any overpayment, to Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: August 28, 2020

By: /John R. King/
John R. King
Registration No. 34,362
Registered Practitioner
(949) 760-0404

33404834

RESCISSION OF ANY PRIOR DISCLAIMERS AND REQUEST TO REVISIT ART

Inventor : John Douglas Steinberg
App. No. : 16/806,779
Filed : March 2, 2020
For : SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE
EFFICIENCY OF AN HVAC SYSTEM
Examiner : Unknown
Art Unit : 3763
Conf. No. : 1851

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

The claims of the present application are different and possibly broader in scope than the claims pursued in the parent applications. To the extent any prior amendments or characterizations of the scope of any claim or referenced art could be construed as a disclaimer of any subject matter supported by the present disclosure, Applicant hereby rescinds and retracts such disclaimer. Accordingly, the references previously considered in the parent applications may need to be re-visited.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,
Knobbe, Martens, Olson & Bear, LLP

Dated: August 28, 2020

By:/John R. King/
John R. King
Registration No. 34,362
Registered Practitioner
(949) 760-0404

33404814

Electronic Patent Application Fee Transmittal

Application Number:	16806779			
Filing Date:	02-Mar-2020			
Title of Invention:	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM			
First Named Inventor/Applicant Name:	John Douglas Steinberg			
Filer:	John R. King/Amy Durrant			
Attorney Docket Number:	EFACT.006C5			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	300	300
UTILITY SEARCH FEE	1111	1	660	660
UTILITY EXAMINATION FEE	1311	1	760	760
Pages:				
Claims:				
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	1051	1	160	160
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with \$0 paid	1253	1	1400	1400
Miscellaneous:				
Total in USD (\$)				3280

Electronic Acknowledgement Receipt

EFS ID:	40412607
Application Number:	16806779
International Application Number:	
Confirmation Number:	1851
Title of Invention:	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
First Named Inventor/Applicant Name:	John Douglas Steinberg
Customer Number:	20995
Filer:	John R. King/Kealani Aguon
Filer Authorized By:	John R. King
Attorney Docket Number:	EFACT.006C5
Receipt Date:	28-AUG-2020
Filing Date:	02-MAR-2020
Time Stamp:	14:28:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 3280
RAM confirmation Number	E20208RE28575346
Deposit Account	111410
Authorized User	Kealani Aguon

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

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 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	Applicant Response to Pre-Exam Formalities Notice	EFACT-006C5_response.pdf	14531	no	1
			3405a98a22c0f1e95e7e0273f2f46a4fdab3f53b		
Warnings:					
Information:					
2	Miscellaneous Incoming Letter	EFACT-006C5_rescission.pdf	12821	no	1
			c3d60458bc138d8f2920eb05ac2eefdfc79bd2fb		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	39213	no	2
			cc1d8b317d468e53067b631bfcb4e6e17dc3923d		
Warnings:					
Information:					
Total Files Size (in bytes):			66565		
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.					

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/806,779	
APPLICATION AS FILED - PART I							
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760
TOTAL CLAIMS (37 CFR 1.16(j))	1	minus 20 = *			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1	minus 3 = *				x 460 =	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
							0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
			TOTAL			TOTAL	1720
* If the difference in column 1 is less than zero, enter "0" in column 2.							
APPLICATION AS AMENDED - PART II							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	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))					OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	
			TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	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))					OR	
	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	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/806,779	03/02/2020	John Douglas Steinberg	EFACT.006C5

CONFIRMATION NO. 1851

FORMALITIES LETTER



OC000000115772102

20995
KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

Date Mailed: 03/30/2020

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
- The application search fee must be submitted.
- The application examination fee must be submitted.
- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.

The surcharge is due for any one of:

- late submission of the basic filing fee, search fee, or examination fee,
- late submission of inventor's oath or declaration,
- filing an application that does not contain at least one claim on filing, or
- submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. No entity status discount is in effect. If applicant is qualified for small entity status, a written assertion of small entity status must be submitted to establish small entity status. (See 37 CFR 1.27). If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- \$ 300 basic filing fee.
- \$ 160 surcharge.
- \$ 660 search fee.
- \$ 760 examination fee.
- \$(0) previous unapplied payment amount.
- \$ 1880 TOTAL FEE BALANCE DUE.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice".
<https://portal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

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.

/ptnguyen/



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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
16/806,779	03/02/2020	3763	0.00	EFACT.006C5	1	1

CONFIRMATION NO. 1851

FILING RECEIPT



CC00000011572101

20995
 KNOBBE MARTENS OLSON & BEAR LLP
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 FOURTEENTH FLOOR
 IRVINE, CA 92614

Date Mailed: 03/30/2020

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Inventor(s)

John Douglas Steinberg, Millbrae, CA;
 Scott Douglas Hublou, Redwood City, CA;

Applicant(s)

EcoFactor, Inc., Redwood City, CA;

Power of Attorney: The patent practitioners associated with Customer Number 20995

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 which is a CON of 15/905,251 02/26/2018
 which is a DIV of 14/731,221 06/04/2015 PAT 9939333
 which is a CON of 13/861,189 04/11/2013 PAT 9057649
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 which claims benefit of 60/994,011 09/17/2007

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 03/27/2020

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/806,779**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

Title

SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM

Preliminary Class

236

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

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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 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 Assets Control, 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).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

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/AIA/82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	Unknown
Filing Date	Herewith
First Named Inventor	John Douglas Steinberg
Title	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
Art Unit	Unknown
Examiner Name	Unknown
Attorney Docket Number	EFACT.006C5

SIGNATURE of Applicant or Patent Practitioner

Signature	/John R. King/		Date (Optional)	
Name	John R. King	Registration Number	34,362	
Title (if Applicant is a juristic entity)	Attorney of record			
Applicant Name (if Applicant is a juristic entity)	EcoFactor, Inc.			

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 1 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.**

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:

20995

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):

EcoFactor, Inc.



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 1.40(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) 11/7/13

Name

John Douglas Steinberg

Title

EVP of Business Development

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 1 forms are submitted.

Electronic Acknowledgement Receipt

EFS ID:	38742241
Application Number:	16806779
International Application Number:	
Confirmation Number:	1851
Title of Invention:	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
First Named Inventor/Applicant Name:	John Douglas Steinberg
Customer Number:	20995
Filer:	John R. King/Fabiola Esmerio
Filer Authorized By:	John R. King
Attorney Docket Number:	EFACT.006C5
Receipt Date:	02-MAR-2020
Filing Date:	
Time Stamp:	17:39:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

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

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	EFACT-006C5_ADS.pdf	1256640	no	9
			3f81733f1ca9d184dfc3ab721ecd854fd4403038		

Warnings:

Information:					
2		EFACT-006C5_SPEC.pdf	109207	yes	23
			bd88f80c33ebca13123787f8108f513c4710457a		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	21	
	Claims		22	22	
	Abstract		23	23	
Warnings:					
Information:					
3	Drawings-only black and white line drawings	EFACT-006C5_drawings.pdf	231825	no	13
			9232292301bfaa2b68131c5f8321d3fd0d222703		
Warnings:					
Information:					
4	Oath or Declaration filed	EFACT-006C5_declaration.pdf	163619	no	2
			e65d0ef64e168a97c6cfcb3efa2231289ed617e1		
Warnings:					
Information:					
5	Power of Attorney	EFACT-006C5_POA.pdf	252984	no	2
			8488c5f4c4ff237fff17acd6f675fd491bd05d1a		
Warnings:					
Information:					
Total Files Size (in bytes):			2014275		

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.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	EFACT.006C5
		Application Number	
Title of Invention	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM		
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
	John	Douglas	Steinberg
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service			
City	Millbrae	State/Province	CA
		Country of Residence	US
Mailing Address of Inventor:			
Address 1		873 Hacienda Way	
Address 2			
City	Millbrae	State/Province	CA
Postal Code	94030	Country i	US
Inventor 2		Remove	
Legal Name			
Prefix	Given Name	Middle Name	Family Name
	Scott	Douglas	Hublou
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service			
City	Redwood City	State/Province	CA
		Country of Residence	US
Mailing Address of Inventor:			
Address 1		747 Lakeview Way	
Address 2			
City	Redwood City	State/Province	CA
Postal Code	94062	Country i	US
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.			
Add			

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	EFACT.006C5
		Application Number	
Title of Invention	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM		

☐ An Address is being provided for the correspondence information of this application.

Customer Number	20995		
Email Address	efiling@knobbe.com	Add Email	Remove Email

Application Information:

Title of the Invention	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM		
Attorney Docket Number	EFACT.006C5	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	13	Suggested Figure for Publication (if any)	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not be** the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	20995		

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	EFACT.006C5
		Application Number	
Title of Invention	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending					Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)			
	Continuation of	16/374083	2019-04-03			
Prior Application Status	Pending					Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)			
16/374083	Continuation of	15/905251	2018-02-26			
Prior Application Status	Patented					Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)	
15/905251	Division of	14/731221	2015-06-04	9939333	2018-04-10	
Prior Application Status	Patented					Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)	
14/731221	Continuation of	13/861189	2013-04-11	9057649	2015-06-16	
Prior Application Status	Patented					Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)	
13/861189	Continuation of	13/230610	2011-09-12	8423322	2013-04-16	
Prior Application Status	Patented					Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)	
13/230610	Continuation of	12/211690	2008-09-16	8019567	2011-09-13	
Prior Application Status	Expired					Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)			
12/211690	Claims benefit of provisional	60/994011	2007-09-17			
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.						Add

Foreign Priority Information:

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	EFACT.006C5
		Application Number	
Title of Invention	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM		

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ^j (if applicable)

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

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.
--

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	EFACT.006C5
		Application Number	
Title of Invention	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	EFACT.006C5
		Application Number	
Title of Invention	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM		

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	Remove
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section. Clear		
☒ Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:		
Name of the Deceased or Legally Incapacitated Inventor:		
If the Applicant is an Organization check here. ☒		
Organization Name	EcoFactor, Inc.	
Mailing Address Information For Applicant:		
Address 1	1450 Veteran's Blvd., Suite 100	
Address 2		
City	Redwood City	State/Province CA
Country	US	Postal Code 94063
Phone Number		Fax Number
Email Address		
Additional Applicant Data may be generated within this form by selecting the Add button. Add		

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	EFACT.006C5
		Application Number	
Title of Invention	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM		

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.				
Remove				
If the Assignee or Non-Applicant Assignee is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
Country		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. Add				

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the **INITIAL** filing of the application and either box A or B is **not** checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/John R. King/		Date (YYYY-MM-DD)	2020-03-02
First Name	John	Last Name	King	Registration Number 34362
Additional Signature may be generated within this form by selecting the Add button. Add				

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	EFACT.006C5
		Application Number	
Title of Invention	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

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

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

- 1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
- 2 A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
- 3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
- 4 A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
- 5 A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent 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.

SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF
AN HVAC SYSTEM

INCORPORATION BY REFERENCE TO ANY PRIORITY APPLICATIONS

[0001] Any and all applications for which a foreign or domestic priority claim is identified in the Application Data Sheet, or any correction thereto, are hereby incorporated by reference into this application under 37 CFR 1.57.

BACKGROUND OF THE INVENTION

Field of the Invention

[0002] This invention relates to the use of thermostatic HVAC controls that are connected to a computer network. More specifically, communicating thermostats are combined with a computer network in order to evaluate changes in the operational efficiency of an HVAC system over time.

Background

[0003] Climate control systems such as heating and cooling systems for buildings (heating, ventilation and cooling, or HVAC systems) have been controlled for decades by thermostats. At the most basic level, a thermostat includes a means to allow a user to set a desired temperature, a means to sense actual temperature, and a means to signal the heating and/or cooling devices to turn on or off in order to try to change the actual temperature to equal the desired temperature. The most basic versions of thermostats use components such as a coiled bi-metallic spring to measure actual temperature and a mercury switch that opens or completes a circuit when the spring coils or uncoils with temperature changes. More recently, electronic digital thermostats have become prevalent. These thermostats use solid-state devices such as thermistors or thermal diodes to measure temperature, and

microprocessor-based circuitry to control the switch and to store and operate based upon user-determined protocols for temperature vs. time.

[0004] These programmable thermostats generally offer a very restrictive user interface, limited by the cost of the devices, the limited real estate of the small wall-mounted boxes, and the inability to take into account more than two variables: the desired temperature set by the user, and the ambient temperature sensed by the thermostat. Users can generally only set one series of commands per day, and in order to change one parameter (e.g., to change the late-night temperature) the user often has to cycle through several other parameters by repeatedly pressing one or two buttons.

[0005] Because the interface of programmable thermostats is so poor, the significant theoretical savings that are possible with them (sometimes cited as 25% of heating and cooling costs) are rarely realized. In practice, studies have found that more than 50% of users never program their thermostats at all. Significant percentages of the thermostats that are programmed are programmed sub-optimally, in part because, once programmed, people tend to not to re-invest the time needed to change the settings very often.

[0006] A second problem with standard programmable thermostats is that they represent only a small evolutionary step beyond the first, purely mechanical thermostats. Like the first thermostats, they only have two input signals – ambient temperature and the preset desired temperature. The entire advance with programmable thermostats is that they can shift between multiple present temperatures at different times.

SUMMARY OF THE INVENTION

[0007] There are many other sources of information that could be used to increase comfort, decrease energy use, or both. For example, outside temperature and humidity strongly affect subjective comfort. On a 95 degree, 90 per cent humidity day in August, when people tend to dress in lightweight clothing, a house cooled to 70 degrees will feel cool or even uncomfortably cold. On a below-freezing day in January, when people tend to wear sweaters and heavier clothes, that same

70 degree home will feel too warm. It would therefore be advantageous for a thermostat system to automatically incorporate information about external weather conditions when setting the desired temperature.

[0008] Thermostats are used to regulate temperature for the benefit of the occupants in a given space. (Usually this means people, but it can of course also mean critical equipment, such as in a room filled with computer equipment.) In general, thermostats read temperature from the sensor located within the “four corners” of the thermostat. With a properly designed system, the thermostat may well be located such that the temperature read at the precise location of the thermostat accurately reflects the conditions where the human (or other) occupants tend to be. But there are many reasons and circumstances in which that will not be the case. A single thermostat may produce accurate readings in some circumstances but not others; it may be located in a place far from the occupants, or too far from the ductwork controlled by the thermostat, etc. In one house, for example, the thermostat may be located in a spot that receives direct sunlight on hot afternoons. This could cause the thermostat to sense that the local ambient temperature is extremely high, and as a result signal the A/C to run too long, making the rest of the home too cold, and wasting considerable energy. In another house, the thermostat may be located in a hallway without ductwork or where the nearby ducts have been closed. In such a scenario, the thermostat is likely to (correctly) report cold temperatures in the winter, leading the heating system to overheat the rest of the house and waste considerable energy.

[0009] These problems can be reduced or eliminated through use of additional remote temperature sensors connected to the thermostat’s control circuitry. However, such systems require additional hardware, additional thermostat complexity, and skilled installation and configuration.

[0010] It would therefore be desirable for a thermostat system using only a single temperature sensor to take such sub-optimal installations into account and to correct for the erroneous readings generated by such thermostats.

[0011] Different structures will respond to changes in conditions such as external temperature in different ways. For example, houses built 50 or more years

ago will generally have little or no insulation, be poorly sealed, and have simple single-glazed windows. Such houses will do a very poor job of retaining internal heat in the winter and rejecting external heat in the summer. In the absence of applications of thermal measures such as heating and air conditioning, the inside temperature in such houses will tend to track outside temperatures very closely. Such houses may be said to have low thermal mass. A house built in recent years, using contemporary techniques for energy efficiency such as high levels of insulation, double-glazed windows and other techniques, will, in the absence of intervention, tend to absorb external heat and release internal heat very slowly. The newer house can be thought of as having higher thermal mass than the older house.

[0012] A conventional thermostat has no mechanism by which it might take the thermal mass of the structure into account, but thermal mass significantly affects many parameters relating to energy efficiency.

[0013] The cost to an electric utility to produce power varies over time. Indeed, the cost of production between low demand and peak demand periods can vary by as much as an order of magnitude. Traditionally, residential customers paid the same price regardless of time or the cost to produce. Thus consumers have had little financial incentive to reduce consumption during periods of high demand and high production cost. Many electric utilities are now seeking to bring various forms of variable rates to the retail energy markets. Under such schemes, consumers can reduce costs by taking into account not just how much energy they use, but when they use it.

[0014] Thus many consumers now can see real benefits from optimizing not just the total number of kilowatt-hours of electricity consumed, but also optimizing when it is used. The optimum strategy for energy use over time will vary based upon many variables, one of which is the thermal mass of the structure being heated or cooled. In a structure with high thermal mass, heating and cooling can effectively be shifted away from high cost periods to lower cost “shoulder” periods with little or no effect on comfort. If, for example, a utility charges much higher rates on hot summer afternoons, it is likely that pre-cooling a high-thermal mass structure just before the high-cost period and then shutting down the air conditioning during

the peak will allow the house to remain comfortable. But in a house with low thermal mass, the benefits of pre-cooling will quickly dissipate, and the house will rapidly become uncomfortable if the air conditioning is shut off. Thus it would be advantageous for a temperature control system to take thermal mass into account when setting desired temperatures.

[0015] Many factors affect the efficiency of HVAC systems. Some may be thought of as essentially fixed, such as the theoretical efficiency of a central air conditioner (often expressed as its SEER rating), the matching of a given system to the characteristics of a given home, the location and size of forced-air ductwork, etc. Other contributors to efficiency are more dynamic, such as clogged filters, refrigerant leaks, duct leakage and “pop-offs,” and the like.

[0016] Most of these problems are likely to manifest themselves in the form of higher energy bills. But the “signature” of each different problem can be discerned from the way in which each such problem affects the cycle times of a given HVAC system over time and relative to weather conditions and the performance of other HVAC systems in other houses. If two otherwise identical houses are located next door to each other and have gas furnaces, but one is rated at 50,000 BTUs and the other is rated at 100,000 BTUs, the cycle times for the higher-capacity furnace should be shorter than for the lower-capacity unit. If both of those same houses have identical furnaces, but one has a clogged filter, the cycle times should be longer in the house with the clogged filter. Because cycling of the HVAC system is controlled by the thermostat, those differences in cycle time would be reflected in the data sensed by and control signals generated by the thermostat. It would be advantageous for a thermostat system to be able to use that information to diagnose problems and make recommendations based upon that data.

[0017] These needs are satisfied by at least one embodiment of the invention that includes a system for calculating a value for the effective thermal mass of a building comprising: at least one HVAC control system that measures temperature at at least a first location conditioned by said HVAC system, and reporting said temperature measurements as well as the status of said HVAC control system; one or more processors that receive measurements of outside

temperatures from at least one source other than said HVAC control systems and compare said temperature measurements from said first location with expected temperature measurements wherein the expected temperature measurements are based at least in part upon past temperature measurements obtained by said HVAC control system and said outside temperature measurements; and one or more databases that store at least said temperatures measured at said first location over time; calculating one or more rates of change in temperature at said first location; and relating said calculated rates of change to said outside temperature measurements.

[0018] Another embodiment includes a system for calculating a value for the operational efficiency of an HVAC system comprising at least one HVAC control system that measures temperature at at least a first location conditioned by said HVAC system, and reporting said temperature measurements as well as the status of said HVAC control system; one or more processors that receive measurements of outside temperatures from at least one source other than said HVAC control systems and compare said temperature measurements from said first location with expected temperature measurements wherein the expected temperature measurements are based at least in part upon past temperature measurements obtained by said HVAC control system and said outside temperature measurements; and one or more databases that store at least said temperatures measured at said first location over time; calculating one or more rates of change in temperature at said first location for periods during which the status of the HVAC system is “on”; calculating one or more rates of change in temperature at said first location for periods during which the status of the HVAC system is “off”; and relating said calculated rates of change to said outside temperature measurements.

[0019] A further embodiment includes a system for evaluating changes in the operational efficiency of an HVAC system over time comprising at least one HVAC control system that measures temperature at at least a first location conditioned by said HVAC system, and reporting said temperature measurements as well as the status of said HVAC control system; one or more processors that receive measurements of outside temperatures from at least one source other than

said HVAC control systems and compare said temperature measurements from said first location with expected temperature measurements wherein the expected temperature measurements are based at least in part upon past temperature measurements obtained by said HVAC control system and said outside temperature measurements; and one or more databases that store at least said temperatures measured at said first location over time.

[0020] A further embodiment includes a system for detecting and correcting for anomalous behavior in HVAC control systems comprising a first HVAC control system that measures temperature at at least a first location conditioned by said first HVAC system, and reporting said temperature measurements as well as the status of said first HVAC control system; at least a second HVAC control system that measures temperature at at least a second location conditioned by said second HVAC system, and reporting said temperature measurements as well as the status of said second HVAC control system; one or more processors that receive measurements of outside temperatures from at least one source other than said first and second HVAC control systems and compare said temperature measurements from said first HVAC controls system and said second HVAC control system and said outside temperature measurements; and one or more databases that store said temperatures measurements.

[0021] In at least one embodiment, the invention comprises a thermostat attached to an HVAC system, a local network connecting the thermostat to a larger network such as the Internet, and one or more additional thermostats attached to the network, and a server in bi-directional communication with a plurality of such thermostats. The server logs the ambient temperature sensed by each thermostat vs. time and the signals sent by the thermostats to their HVAC systems. The server preferably also logs outside temperature and humidity data for the geographic locations for the buildings served by the connected HVAC systems. Such information is widely available from various sources that publish detailed weather information based on geographic areas such as by ZIP code. The server also stores other data affecting the load upon the system, such as specific model of HVAC system, occupancy, building characteristics, etc. Some of this data may be

supplied by the individual users of the system, while other data may come from third-party sources such as the electric and other utilities who supply energy to those users.

[0022] Combining these data sources will also allow the server to calculate the effective thermal mass of the structures conditioned by those thermostats. By combining data from multiple thermostats in a given neighborhood, the system can correct for flaws in the location of a given thermostat, and can evaluate the efficiency of a given system, as well as assist in the diagnosis of problems and malfunctions in such systems.

[0023] This and other advantages of certain embodiments of the invention are explained in the detailed description and claims that make reference to the accompanying diagrams and flowcharts.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] Figure 1 shows an example of an overall environment in which an embodiment of the invention may be used.

[0025] Figure 2 shows a high-level illustration of the architecture of a network showing the relationship between the major elements of one embodiment of the subject invention.

[0026] Figure 3 shows an embodiment of the website to be used as part of the subject invention.

[0027] Figure 4 shows a high-level schematic of the thermostat used as part of the subject invention.

[0028] Figure 5 shows one embodiment of the database structure used as part of the subject invention

[0029] Figures 6a and 6b show graphical representations of inside and outside temperatures in two different homes, one with high thermal mass and one with low thermal mass.

[0030] Figures 7a and 7b show graphical representations of inside and outside temperatures in the same homes as in Figures 6a and 6b, showing the cycling of the air conditioning systems in those houses.

[0031] Figures 8a and 8b show graphical representations of inside and outside temperatures in the same home as in Figures 6a and 7a, showing the cycling of the air conditioning on two different days in order to demonstrate the effect of a change in operating efficiency on the parameters measured by the thermostat.

[0032] Figures 9a and 9b show the effects of employing a pre-cooling strategy in two different houses.

[0033] Figures 10a and 10b show graphical representations of inside and outside temperatures in two different homes in order to demonstrate how the system can correct for erroneous readings in one house by referencing readings in another.

[0034] Figure 11 is a flowchart illustrating the steps involved in calculating the effective thermal mass of a home using the subject invention.

[0035] Figure 12 is a flowchart illustrating the steps involved in determining whether an HVAC system has developed a problem that impairs efficiency using the subject invention.

[0036] Figure 13 is a flowchart illustrating the steps involved in correcting for erroneous readings in one house by referencing readings in another using the subject invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0037] **Figure 1** shows an example of an overall environment 100 in which an embodiment of the invention may be used. The environment 100 includes an interactive communication network 102 with computers 104 connected thereto. Also connected to network 102 are one or more server computers 106, which store information and make the information available to computers 104. The network 102 allows communication between and among the computers 104 and 106.

[0038] Presently preferred network 102 comprises a collection of interconnected public and/or private networks that are linked to together by a set of standard protocols to form a distributed network. While network 102 is intended to refer to what is now commonly referred to as the Internet, it is also intended to

encompass variations which may be made in the future, including changes additions to existing standard protocols.

[0039] When a user of the subject invention wishes to access information on network 102, the buyer initiates connection from his computer 104. For example, the user invokes a browser, which executes on computer 104. The browser, in turn, establishes a communication link with network 102. Once connected to network 102, the user can direct the browser to access information on server 106.

[0040] One popular part of the Internet is the World Wide Web. The World Wide Web contains a large number of computers 104 and servers 106, which store HyperText Markup Language (HTML) documents capable of displaying graphical and textual information. HTML is a standard coding convention and set of codes for attaching presentation and linking attributes to informational content within documents.

[0041] The servers 106 that provide offerings on the World Wide Web are typically called websites. A website is often defined by an Internet address that has an associated electronic page. Generally, an electronic page is a document that organizes the presentation of text graphical images, audio and video.

[0042] In addition to the Internet, the network 102 can comprise a wide variety of interactive communication media. For example, network 102 can include local area networks, interactive television networks, telephone networks, wireless data systems, two-way cable systems, and the like.

[0043] In one embodiment, computers 104 and servers 106 are conventional computers that are equipped with communications hardware such as modem or a network interface card. The computers include processors such as those sold by Intel and AMD. Other processors may also be used, including general-purpose processors, multi-chip processors, embedded processors and the like.

[0044] Computers 104 can also be handheld and wireless devices such as personal digital assistants (PDAs), cellular telephones and other devices capable of accessing the network.

[0045] Computers 104 utilize a browser configured to interact with the World Wide Web. Such browsers may include Microsoft Explorer, Mozilla, Firefox, Opera or Safari. They may also include browsers used on handheld and wireless devices.

[0046] The storage medium may comprise any method of storing information. It may comprise random access memory (RAM), electronically erasable programmable read only memory (EEPROM), read only memory (ROM), hard disk, floppy disk, CD-ROM, optical memory, or other method of storing data.

[0047] Computers 104 and 106 may use an operating system such as Microsoft Windows, Apple Mac OS, Linux, Unix or the like.

[0048] Computers 106 may include a range of devices that provide information, sound, graphics and text, and may use a variety of operating systems and software optimized for distribution of content via networks.

[0049] **Figure 2** illustrates in further detail the architecture of the specific components connected to network 102 showing the relationship between the major elements of one embodiment of the subject invention. Attached to the network are thermostats 108 and computers 104 of various users. Connected to thermostats 108 are HVAC units 110. The HVAC units may be conventional air conditioners, heat pumps, or other devices for transferring heat into or out of a building. Each user is connected to the server 106 via wired or wireless connection such as Ethernet or a wireless protocol such as IEEE 802.11, a gateway 110 that connects the computer and thermostat to the Internet via a broadband connection such as a digital subscriber line (DSL) or other form of broadband connection to the World Wide Web. Server 106 contains the content to be served as web pages and viewed by computers 104, as well as databases containing information used by the servers.

[0050] In the currently preferred embodiment, the website 200 includes a number of components accessible to the user, as shown in **Figure 3**. Those components may include a means to enter temperature settings 202, a means to enter information about the user's home 204, a means to enter the user's electricity bills 206, means to calculate energy savings that could result from various thermostat-setting strategies 208, and means to enable and choose between

various arrangements 210 for demand reduction with their electric utility provider as intermediated by the demand reduction service provider.

[0051] **Figure 4** shows a high-level block diagram of thermostat 108 used as part of the subject invention. Thermostat 108 includes temperature sensing means 252, which may be a thermistor, thermal diode or other means commonly used in the design of electronic thermostats. It includes a microprocessor 254, memory 256, a display 258, a power source 260, a relay 262, which turns the HVAC system on and off in response to a signal from the microprocessor, and contacts by which the relay is connected to the wires that lead to the HVAC system. To allow the thermostat to communicate bi-directionally with the computer network, the thermostat also includes means 264 to connect the thermostat to a local computer or to a wireless network. Such means could be in the form of Ethernet, wireless protocols such as IEEE 802.11, IEEE 802.15.4, Bluetooth, cellular systems such as CDMA, GSM and GPRS, or other wireless protocols. The thermostat 250 may also include controls 266 allowing users to change settings directly at the thermostat, but such controls are not necessary to allow the thermostat to function.

[0052] The data used to generate the content delivered in the form of the website is stored on one or more servers 106 within one or more databases. As shown in **Figure 5**, the overall database structure 300 may include temperature database 400, thermostat settings database 500, energy bill database 600, HVAC hardware database 700, weather database 800, user database 900, transaction database 1000, product and service database 1100 and such other databases as may be needed to support these and additional features.

[0053] The website will allow users of connected thermostats 250 to create personal accounts. Each user's account will store information in database 900, which tracks various attributes relative to users of the site. Such attributes may include the make and model of the specific HVAC equipment in the user's home; the age and square footage of the home, the solar orientation of the home, the location of the thermostat in the home, the user's preferred temperature settings, whether the user is a participant in a demand reduction program, etc.

[0054] As shown in Figure 3, the website 200 will permit thermostat users to perform through the web browser substantially all of the programming functions traditionally performed directly at the physical thermostat, such as temperature set points, the time at which the thermostat should be at each set point, etc. Preferably the website will also allow users to accomplish more advanced tasks such as allow users to program in vacation settings for times when the HVAC system may be turned off or run at more economical settings, and set macros that will allow changing the settings of the temperature for all periods with a single gesture such as a mouse click.

[0055] In addition to using the system to allow better signaling and control of the HVAC system, which relies primarily on communication running from the server to the thermostat, the bi-directional communication will also allow the thermostat 108 to regularly measure and send to the server information about the temperature in the building. By comparing outside temperature, inside temperature, thermostat settings, cycling behavior of the HVAC system, and other variables, the system will be capable of numerous diagnostic and controlling functions beyond those of a standard thermostat.

[0056] For example, **Fig. 6a** shows a graph of inside temperature and outside temperature for a 24-hour period in House A, assuming no HVAC activity. House A has double-glazed windows and is well-insulated. When outside temperature 302 increases, inside temperature 304 follows, but with significant delay because of the thermal mass of the building.

[0057] **Figure 6b** shows a graph of inside temperature and outside temperature for the same 24-hour period in House B. House B is identical to House A except that it (i) is located a block away and (ii) has single-glazed windows and is poorly insulated. Because the two houses are so close to each other, outside temperature 302 is the same in Figure 6a and Figure 6b. But the lower thermal mass of House B means that the rate at which the inside temperature 306 changes in response to the changes in outside temperature is much greater.

[0058] The differences in thermal mass will affect the cycling behavior of the HVAC systems in the two houses as well. **Figure 7a** shows a graph of inside

temperature and outside temperature in House A for the same 24-hour period as shown in Figure 6a, but assuming that the air conditioning is being used to try to maintain an internal temperature of 70 degrees. Outside temperatures 302 are the same as in Figures 6a and 6b. Because of the high thermal mass of the house, the air conditioning does not need to run for very long to maintain the target temperature, as shown by shaded areas 310.

[0059] **Figure 7b** shows a graph of inside temperature 312 and outside temperature 302 for the same 24-hour period in House B, assuming use of the air conditioning as in Figure 7a. Because of the lower thermal mass of House B, the air conditioning system in House B has to run longer in order to maintain the same target temperature, as shown by shaded areas 314.

[0060] Because server 106a logs the temperature readings from inside each house (whether once per minute or over some other interval), as well as the timing and duration of air conditioning cycles, database 300 will contain a history of the thermal performance of each house. That performance data will allow the server 106a to calculate an effective thermal mass for each such structure – that is, the speed with the temperature inside a given building will change in response to changes in outside temperature and differences between inside and outside temperatures. Because the server will also log these inputs against other inputs including time of day, humidity, etc. the server will be able to predict, at any given time on any given day, the rate at which inside temperature should change for given inside and outside temperatures.

[0061] The server will also record the responses of each house to changes in outside conditions and cycling behavior over time. That will allow the server to diagnose problems as and when they develop. For example, **Figure 8a** shows a graph of outside temperature 402, inside temperature 404 and HVAC cycle times 406 in House A for a specific 24-hour period on date X. Assume that, based upon comparison of the performance of House A on date X relative to House A's historical performance, and in comparison to the performance of House A relative to other nearby houses on date X, the HVAC system in House A is presumed to be operating at normal efficiency, and that House A is in the 86th percentile as

compared to those other houses. **Figure 8b** shows a graph of outside temperature 408, inside temperature 410 and HVAC cycle times 412 in House A for the 24-hour period on date X+1. House A's HVAC system now requires significantly longer cycle times in order to try to maintain the same internal temperature. If those longer cycle times were due to higher outside temperatures, those cycle times would not indicate the existence of any problems. But because server 106 is aware of the outside temperature, the system can eliminate that possibility as an explanation for the higher cycle times. Because server 106 is aware of the cycle times in nearby houses, it can determine that, for example, on date X+1 the efficiency of House A is only in the 23rd percentile. The server will be programmed with a series of heuristics, gathered from predictive models and past experience, correlating the drop in efficiency and the time interval over which it has occurred with different possible causes. For example, a 50% drop in efficiency in one day may be correlated with a refrigerant leak, especially if followed by a further drop in efficiency on the following day. A reduction of 10% over three months may be correlated with a clogged filter. Based upon the historical data recorded by the server, the server 106 will be able to alert the homeowner that there is a problem and suggest a possible cause.

[0062] Because the system will be able to calculate effective thermal mass, it will be able to determine the cost effectiveness of strategies such as pre-cooling for specific houses under different conditions. **Figure 9a** shows a graph of outside temperature 502, inside temperature 504 and HVAC cycling times 506 in House A for a specific 24-hour period on date Y assuming that the system has used a pre-cooling strategy to avoid running the air conditioning during the afternoon, when rates are highest. Because House A has high thermal mass, the house is capable of "banking" cool, and energy consumed during off-peak hours is in effect stored, allowing the house to remain cool even when the system is turned off. Temperatures keep rising during the period the air conditioning is off, but because thermal mass is high, the rate of increase is low, and the house is still comfortable six hours later. Although the pre-cooling cycle time is relatively long, the homeowner may still benefit because the price per kilowatt during the morning pre-

cooling phase is lower than the price during the peak load period. **Figure 9b** shows a graph of the same outside temperature 502 in House B as in House A in Figure 9a for the same 24-hour period and using the same pre-cooling strategy as shown by cycling times 506. But because House B has minimal thermal mass, using additional electricity in order to pre-cool the house does not have the desired effect; inside temperature 508 warms up so fast that the cool that had been banked is quickly lost. Thus the system will recommend that House A pre-cool in order to save money, but not recommend pre-cooling for House B.

[0063] The system can also help compensate for anomalies such as measurement inaccuracies due to factors such as poor thermostat location. It is well-known that thermostats should be placed in a location that will be likely to experience “average” temperatures for the overall structure, and should be isolated from windows and other influences that could bias the temperatures they “see.” But for various reasons, not all thermostat installations fit that ideal. **Figure 10a** shows a graph of outside temperature 602, the average inside temperature for the entire house 604, and inside temperature as read by the thermostat 606 in House C for a specific 24-hour period on September 15th, assuming that the thermostat is located so that from 4PM until 5:30PM on that day the thermostat is in direct sunlight. Until the point at which the sun hits the thermostat, the average inside temperature and temperature as read by the thermostat track very closely. But when the direct sunlight hits the thermostat, the thermostat and the surrounding area can heat up, causing the internal temperature as read by the thermostat to diverge significantly from the average temperature for the rest of the house. Conventional thermostats have no way of distinguishing this circumstance from a genuinely hot day, and will both over-cool the rest of the house and waste considerable energy when it cycles the air conditioner in order to reduce the temperature as sensed by the thermostat. If the air conditioning is turned off, this phenomenon will manifest as a spike in temperature as measured by the thermostat. If the air conditioning is turned on (and has sufficient capacity to respond to the distorted temperature signal caused by the sunlight), this phenomenon will likely manifest as relatively small changes in the temperature as sensed by the thermostat, but significantly increased HVAC usage

(as well as excessively lowered temperatures in the rest of the house, but this result may not be directly measured in a single sensor environment. The subject system, in contrast, has multiple mechanisms that will allow it to correct for such distortions. First, because the subject system compares the internal readings from House C with the external temperature, it will be obvious that the rise in temperature at 4:00PM is not correlated with a corresponding change in outside temperature. Second, because the system is also monitoring the readings from the thermostat in nearby House D, which (as shown in **Figure 10b**) is exposed to the same outside temperature 602, but has no sudden rise in measured internal temperature 608 at 4:00, the system has further validation that the temperature increase is not caused by climatic conditions. And finally, because the system has monitored and recorded the temperature readings from the thermostat in House C for each previous day, and has compared the changing times of the aberration with the progression of the sun, the system can distinguish the patterns likely to indicate solar overheating from other potential causes.

[0064] Figure 11 illustrates the steps involved in calculating comparative thermal mass, or the thermal mass index. In step 1102, the server retrieves climate data related to home X. Such data may include current outside temperature, outside temperature during the preceding hours, outside humidity, wind direction and speed, whether the sun is obscured by clouds, and other factors. In step 1104, the server retrieves HVAC duty cycle data for home X. Such data may include target settings set by the thermostat in current and previous periods, the timing of switch-on and switch-off events and other data. In step 1106, the server retrieves data regarding recent temperature readings as recorded by the thermostat in home X. In step 1108, the server retrieves profile data for home X. Such data may include square footage and number of floors, when the house was built and/or renovated, the extent to which it is insulated, its address, make, model and age of its furnace and air conditioning hardware, and other data. In step 1110, the server retrieves the current inside temperature reading as transmitted by the thermostat. In step 1112, the server calculates the thermal mass index for the home under those conditions; that is, for example, it calculates the likely rate of change for internal temperature in

home X from a starting point of 70 degrees when the outside temperature is 85 degrees at 3:00PM on August 10th when the wind is blowing at 5 mph from the north and the sky is cloudy. The server accomplishes this by applying a basic algorithm that weighs each of these external variables as well as variables for various characteristics of the home itself (such as size, level of insulation, method of construction, etc.) and data from other houses and environments.

[0065] **Figure 12** illustrates the steps involved in diagnosing defects in the HVAC system for specific home X. In step 1202, the server retrieves climate data related to home X. Such data may include current outside temperature, outside temperature during the preceding hours, outside humidity, wind direction and speed, whether the sun is obscured by clouds, and other factors. In step 1204, the server retrieves HVAC duty cycle data for home X. Such data may include target settings set by the thermostat in current and previous periods, the timing of switch-on and switch-off events and other data. In step 1206, the server retrieves data regarding current and recent temperature readings as recorded by the thermostat in home X. In step 1208, the server retrieves profile data for home X. Such data may include square footage and number of floors, when the house was built and/or renovated, the extent to which it is insulated, its address, make, model and age of its furnace and air conditioning hardware, and other data. In step 1210, the server retrieves comparative data from other houses that have thermostats that also report to the server. Such data may include interior temperature readings, outside temperature for those specific locations, duty cycle data for the HVAC systems at those locations, profile data for the structures and HVAC systems in those houses and the calculated thermal mass index for those other houses. In step 1212, the server calculates the current relative efficiency of home X as compared to other homes. Those comparisons will take into account differences in size, location, age, etc in making those comparisons.

[0066] The server will also take into account that relative efficiency is not absolute, but will vary depending on conditions. For example, a house that has extensive south-facing windows is likely to experience significant solar gain. On sunny winter days, that home will appear more efficient than on cloudy winter days.

That same house will appear more efficient at times of day and year when trees or overhangs shade those windows than it will when summer sun reaches those windows. Thus the server will calculate efficiency under varying conditions.

[0067] In step 1214 the server compares the HVAC system's efficiency, corrected for the relevant conditions, to its efficiency in the past. If the current efficiency is substantially the same as the historical efficiency, the server concludes 1216 that there is no defect and the diagnostic routine ends. If the efficiency has changed, the server proceeds to compare the historical and current data against patterns of changes known to indicate specific problems. For example, in step 1218, the server compares that pattern of efficiency changes against the known pattern for a clogged air filter, which is likely to show a slow, gradual degradation over a period of weeks or even months. If the pattern of degradation matches the clogged filter paradigm, the server creates and transmits to the homeowner a message 1220 alerting the homeowner to the possible problem. If the problem does not match the clogged filter paradigm, the system compares 1222 the pattern to the known pattern for a refrigerant leak, which is likely to show a degradation over a period of a few hours to a few days. If the pattern of degradation matches the refrigerant leak paradigm, the server creates and transmits to the homeowner a message 1224 alerting the homeowner to the possible problem. If the problem does not match the refrigerant leak paradigm, the system compares 1226 the pattern to the known pattern for an open window or door, which is likely to show significant changes for relatively short periods at intervals uncorrelated with climatic patterns. If the pattern of degradation matches the open door/window paradigm, the server creates and transmits to the homeowner a message 1228 alerting the homeowner to the possible problem. If the problem does not match the refrigerant leak paradigm, the system continues to step through remaining known patterns N 1230 until either a pattern is matched 1232 or the list has been exhausted without a match 1234.

[0068] **Figure 13** illustrates the steps involved in diagnosing inaccurate thermostat readings due to improper location. In step 1302, the server retrieves climate data related to home X. Such data may include current outside

temperature, outside temperature during the preceding hours, outside humidity, wind direction and speed, whether the sun is obscured by clouds, and other factors. In step 1304, the server retrieves HVAC duty cycle data for home X. Such data may include target settings set by the thermostat in current and previous periods, the timing of switch-on and switch-off events and other data. In step 1306, the server retrieves data regarding current and recent temperature readings as recorded by the thermostat in home X. In step 1308, the server retrieves profile data for home X. Such data may include square footage and number of floors, when the house was built and/or renovated, the extent to which it is insulated, its address, make, model and age of its furnace and air conditioning hardware, and other data. In step 1310, the server retrieves comparative data from other houses that have thermostats that also report to the server. Such data may include interior temperature readings, outside temperature for those specific locations, duty cycle data for the HVAC systems at those locations, profile data for the structures and HVAC systems in those houses and the calculated thermal mass index for those other houses. In step 1312, the server calculates the expected thermostat temperature reading based upon the input data. In step 1314, the server compares the predicted and actual values. If the calculated and actual values are at least roughly equivalent, the server concludes 1316 that there is no thermostat-related anomaly. If the calculated and actual values are not roughly equivalent, the server retrieves additional historical information about past thermostat readings in step 1318. In step 1320, the server retrieves solar progression data, i.e., information regarding the times at which the sun rises and sets on the days being evaluated at the location of the house being evaluated, and the angle of the sun at that latitude, etc. In step 1322, the server compares the characteristics of the anomalies over time, to see if, for example, abnormally high readings began at 3:06 on June 5th, 3:09 on June 6th, 3:12 on June 7th, and the solar progression data suggests that at the house being analyzed, that sun would be likely to reach a given place in that house three minutes later on each of those days. If the thermostat readings do not correlate with the solar progression data, the server concludes 1324 that the sun is not causing the distortion by directly hitting the thermostat. If the thermostat readings do correlate

with solar progression, the server then calculates 1326 the predicted duration of the distortion caused by the sun. In step 1328, the server calculates the appropriate setpoint information to be used by the thermostat to maintain the desired temperature and correct for the distortion for the expected length of the event. For example, if the uncorrected setpoint during the predicted event is 72 degrees, and the sun is expected to elevate the temperature reading by eight degrees, the server will instruct the thermostat to maintain a setpoint of 80 degrees. In step 1330, the server sends the homeowner a message describing the problem.

[0069] The system installed in a subscriber's home may optionally include additional temperature sensors at different locations within the building. These additional sensors may be connected to the rest of the system via a wireless system such as 802.11 or 802.15.4, or may be connected via wires. Additional temperature and/or humidity sensors may allow increased accuracy of the system, which can in turn increase user comfort or energy savings.

[0070] While particular embodiments have been shown and described, it is apparent that changes and modifications may be made without departing from the invention in its broader aspects and, therefore, the invention may be carried out in other ways without departing from the true spirit and scope. These and other equivalents are intended to be covered by the following claims:

WHAT IS CLAIMED IS:

1. A system for controlling an HVAC system at a user's building, the system comprising:
 - a memory; and
 - one or more processors;
 - the one or more processors configured to receive a first data from at least one sensor, wherein the first data from the at least one sensor includes a measurement of at least one characteristic of the user's building;
 - the one or more processors further configured to receive a second data from a network connection, wherein the second data from the network connection is collected from a source external to the building;
 - the one or more processors further configured to receive a first temperature setpoint for the building, wherein the first setpoint includes a temperature value and a time value;
 - the one or more processors further configured to predict, based at least on the first data from the sensor, the second data from the network connection, and the first temperature setpoint, the time necessary for the HVAC system to operate in order to reach the temperature value by the time value; and
 - the one or more processors further configured to control the HVAC system to operate to cause the building to reach the temperature value by the time value.

SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM

ABSTRACT OF THE DISCLOSURE

The invention comprises systems and methods for evaluating changes in the operational efficiency of an HVAC system over time. The climate control system obtains temperature measurements from at least a first location conditioned by the climate system, and status of said HVAC system. One or more processors receives measurements of outside temperatures from at least one source other than said HVAC system and compares said temperature measurements from said first location with expected temperature measurements. The expected temperature measurements are based at least in part upon past temperature measurements.

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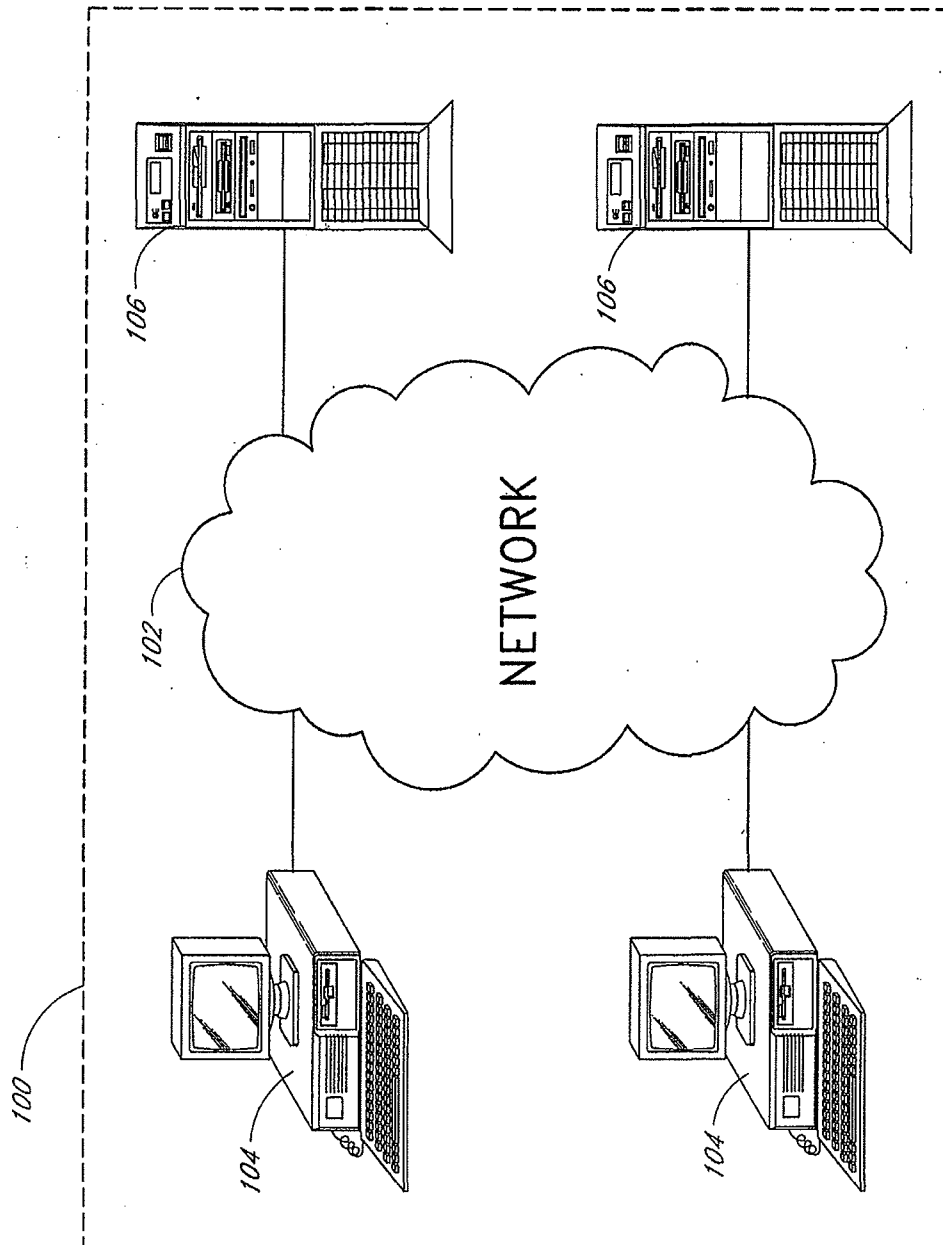
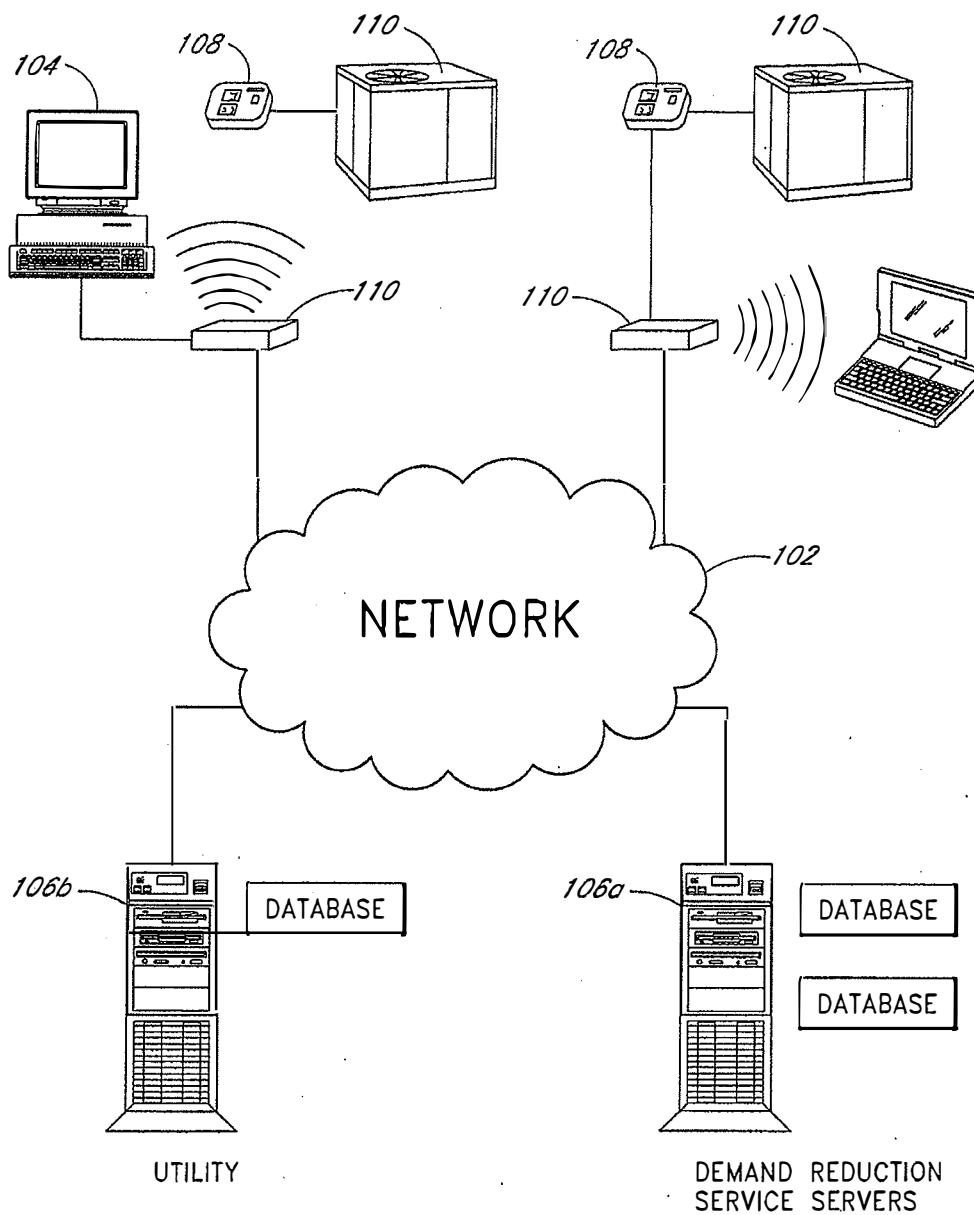


FIG. 1

*FIG. 2*

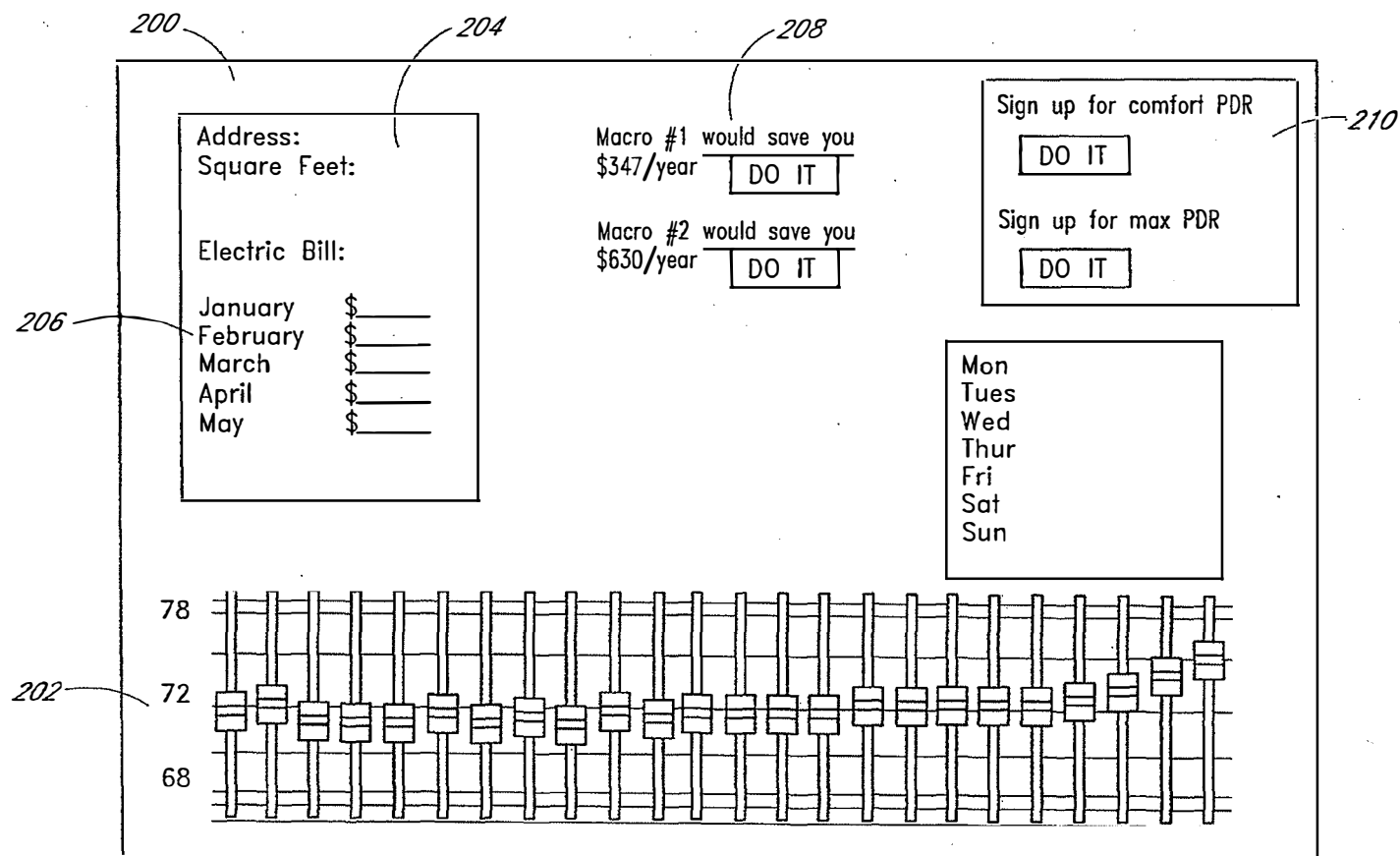


FIG. 3

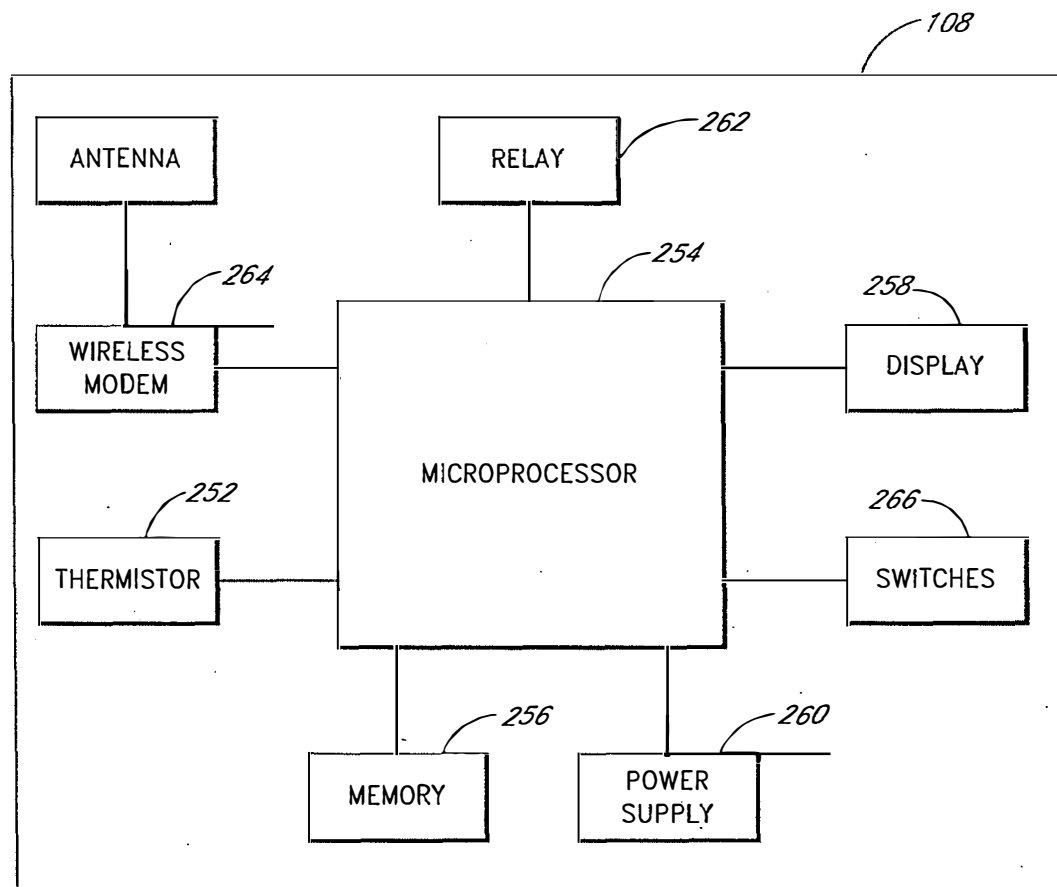


FIG. 4

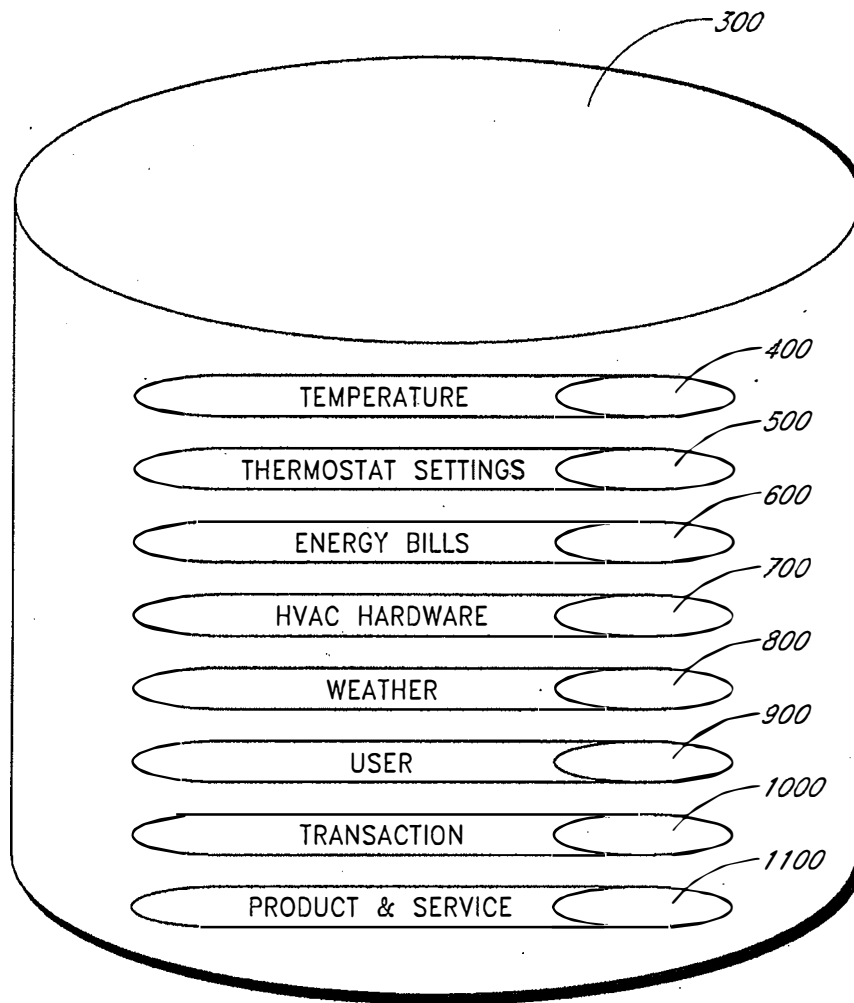


FIG. 5

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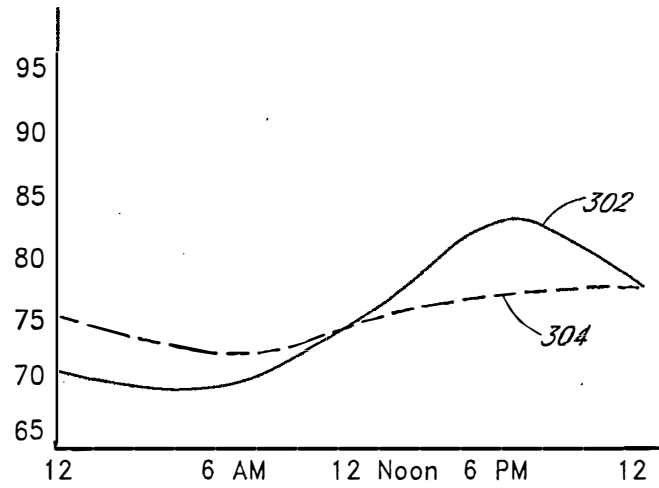


FIG. 6A

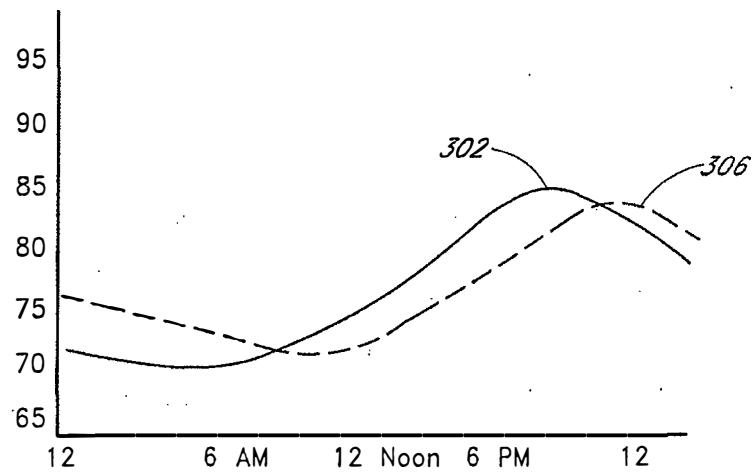


FIG. 6B

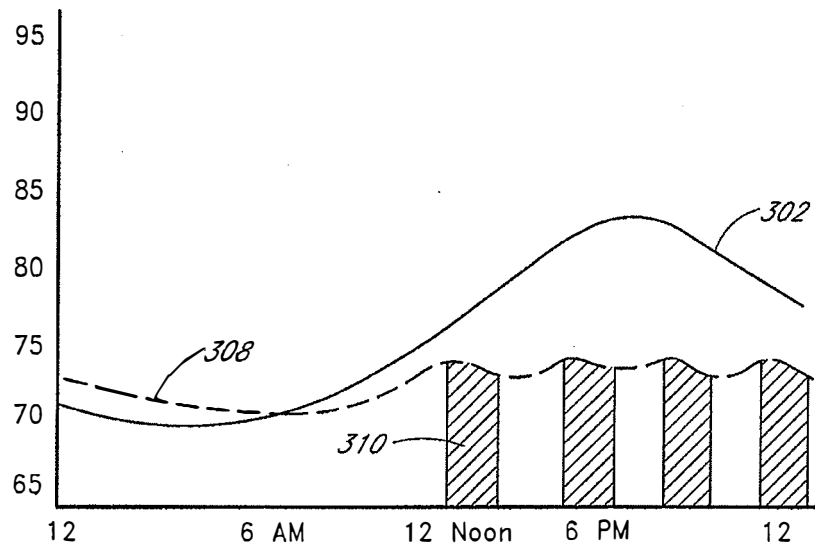


FIG. 7A

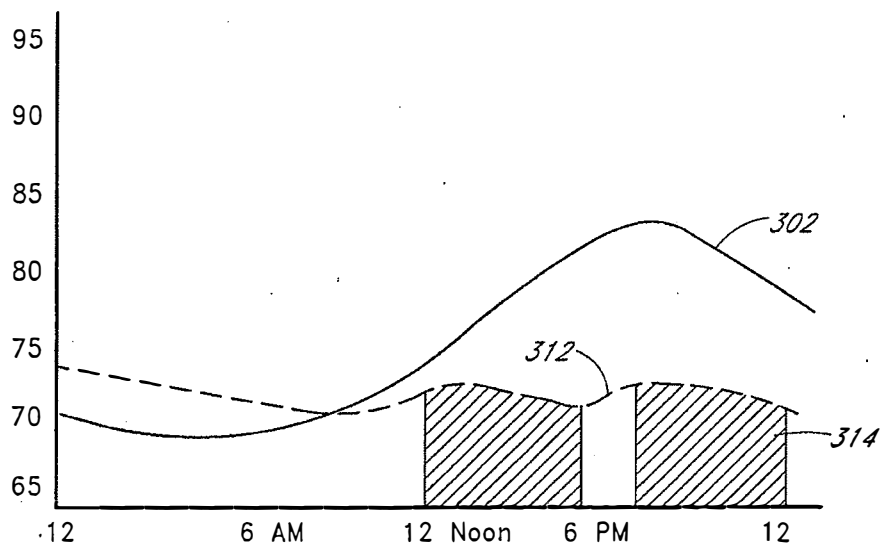


FIG. 7B

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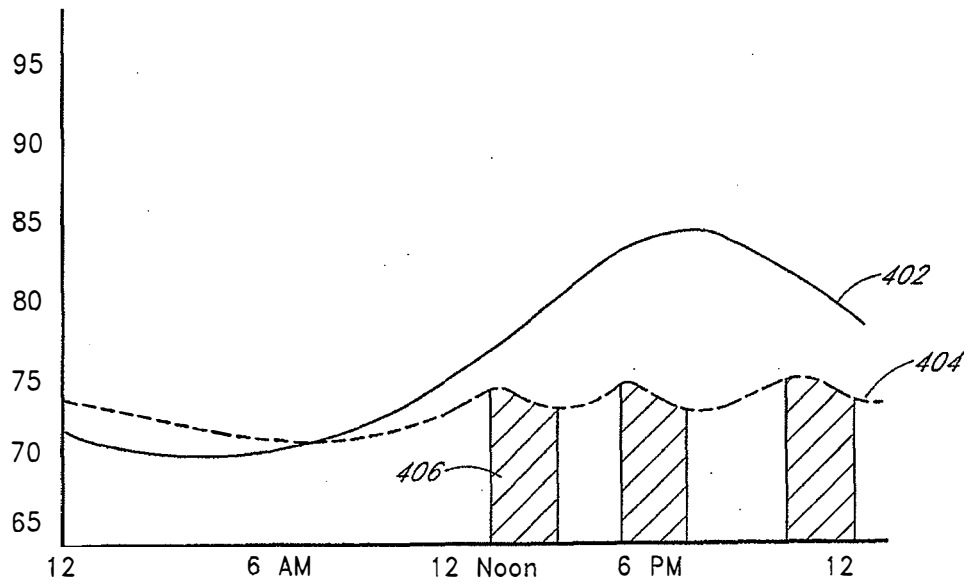


FIG. 8A

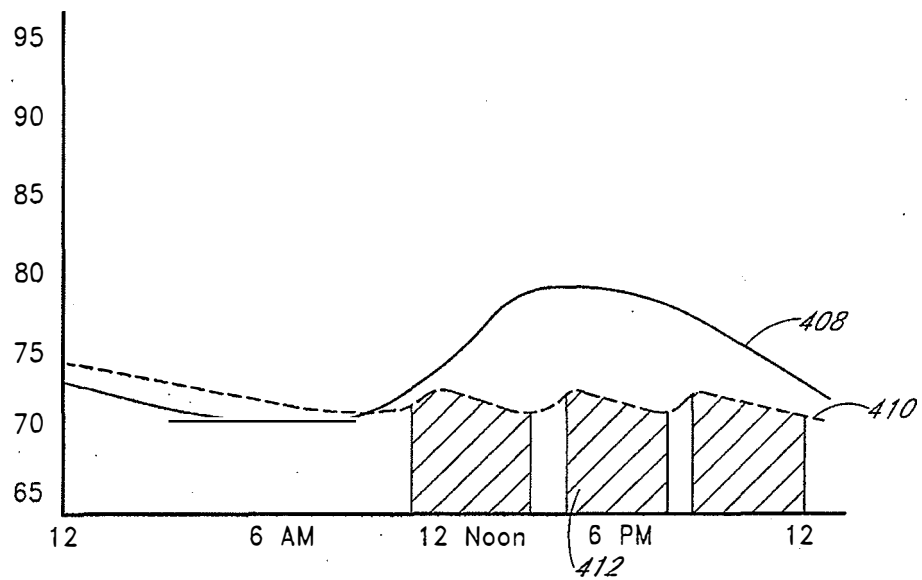


FIG. 8B

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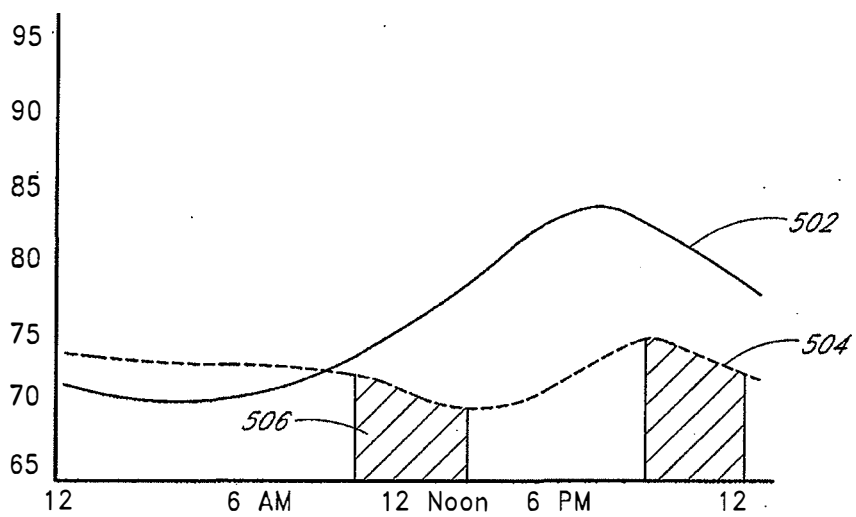


FIG. 9A

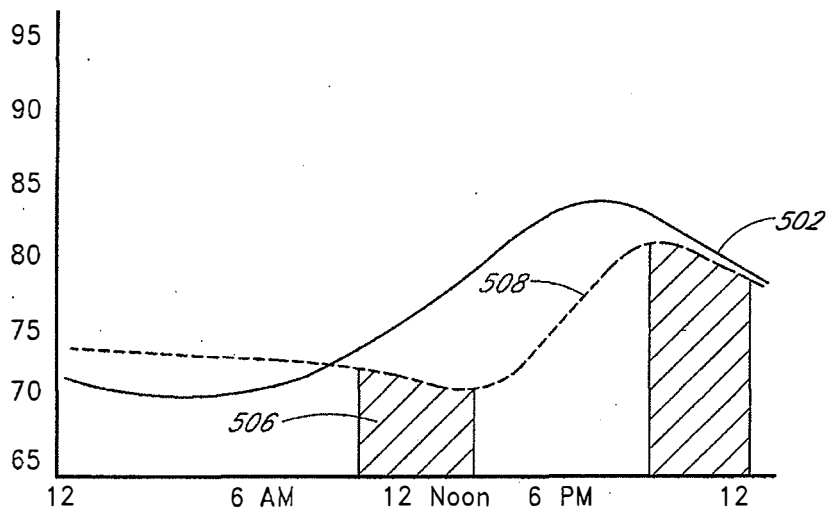


FIG. 9B

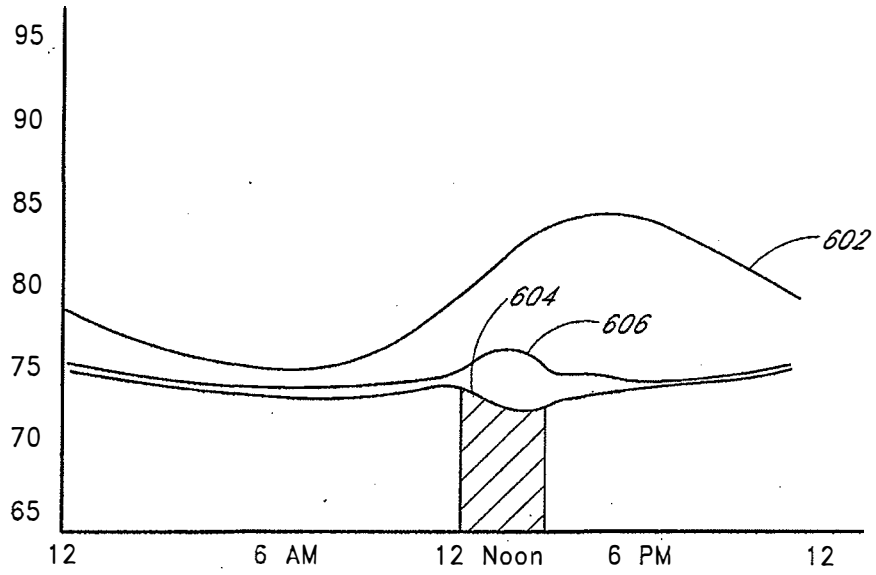


FIG. 10A

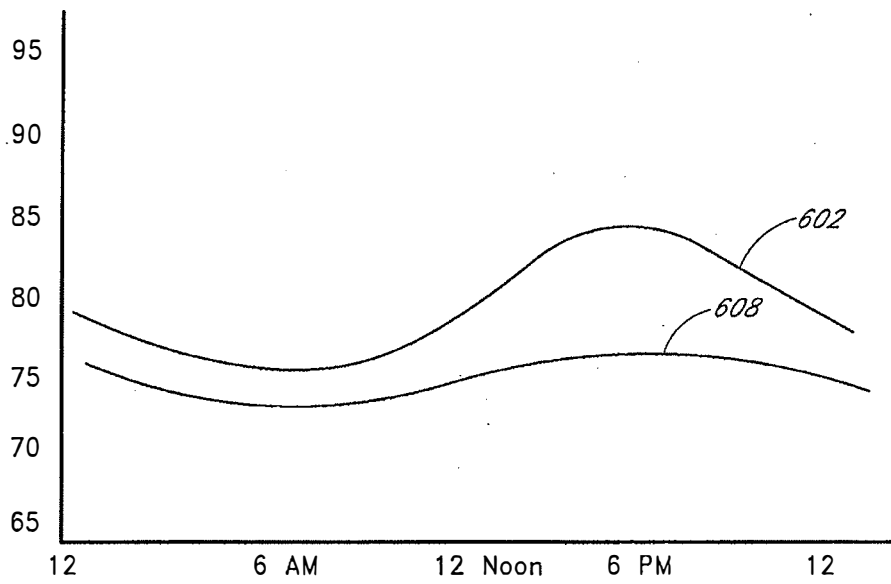
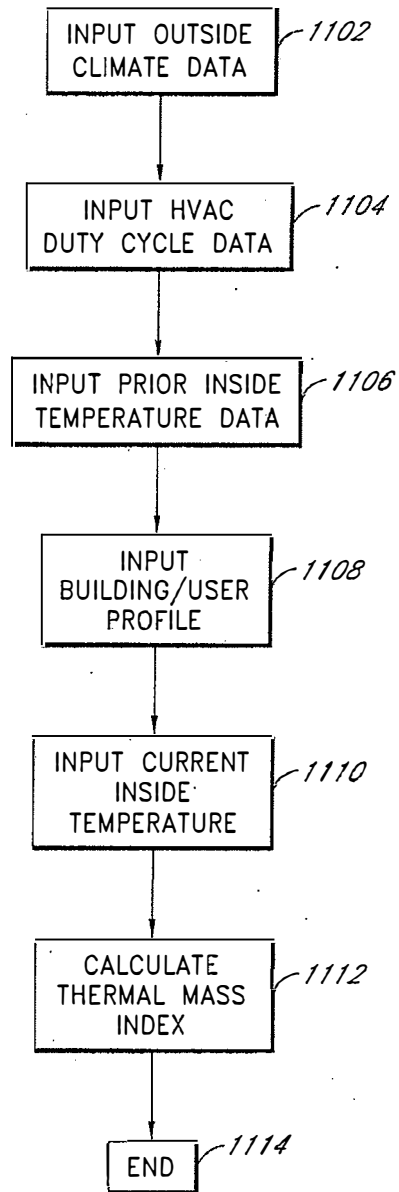


FIG. 10B

*FIG. 11*

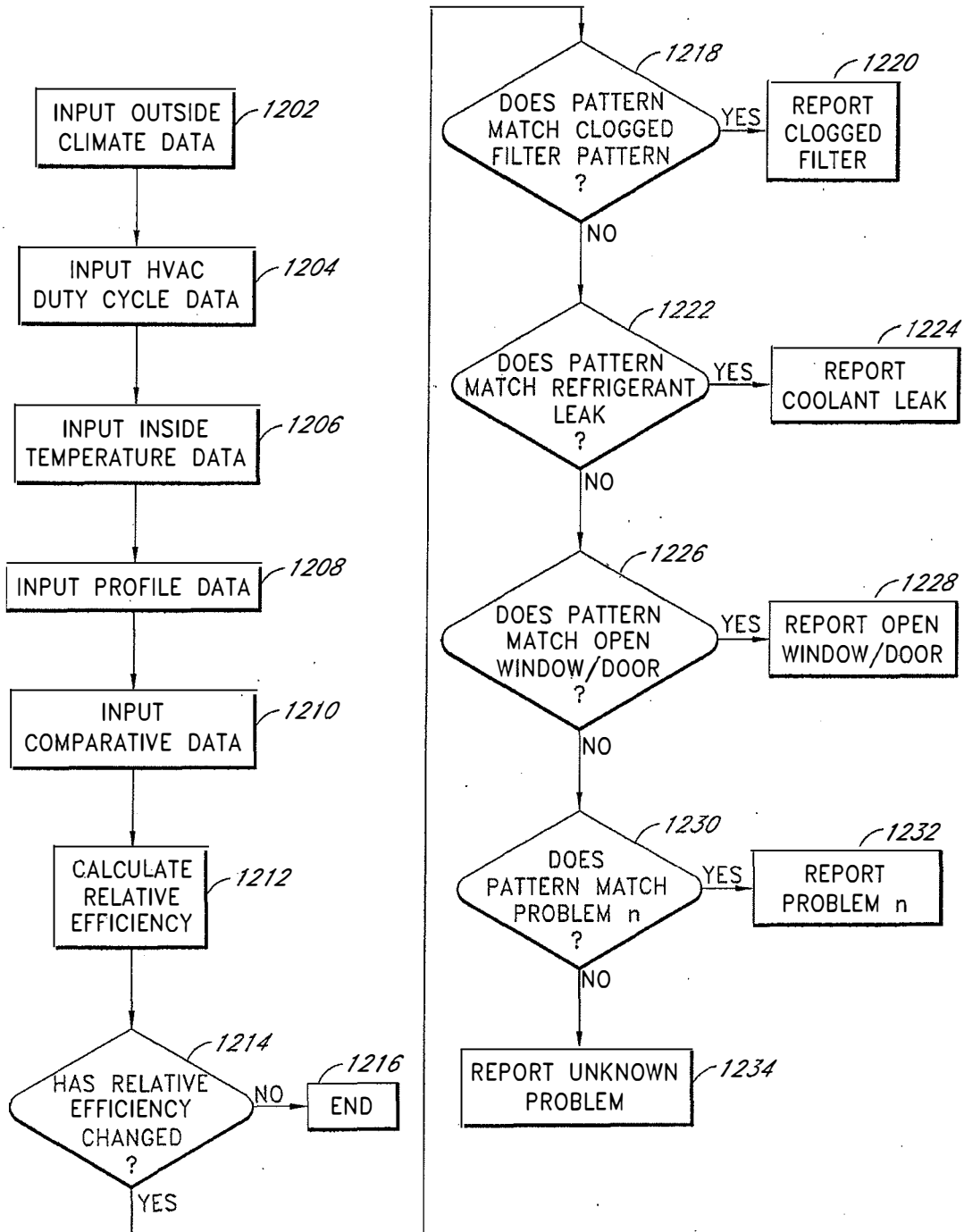


FIG. 12

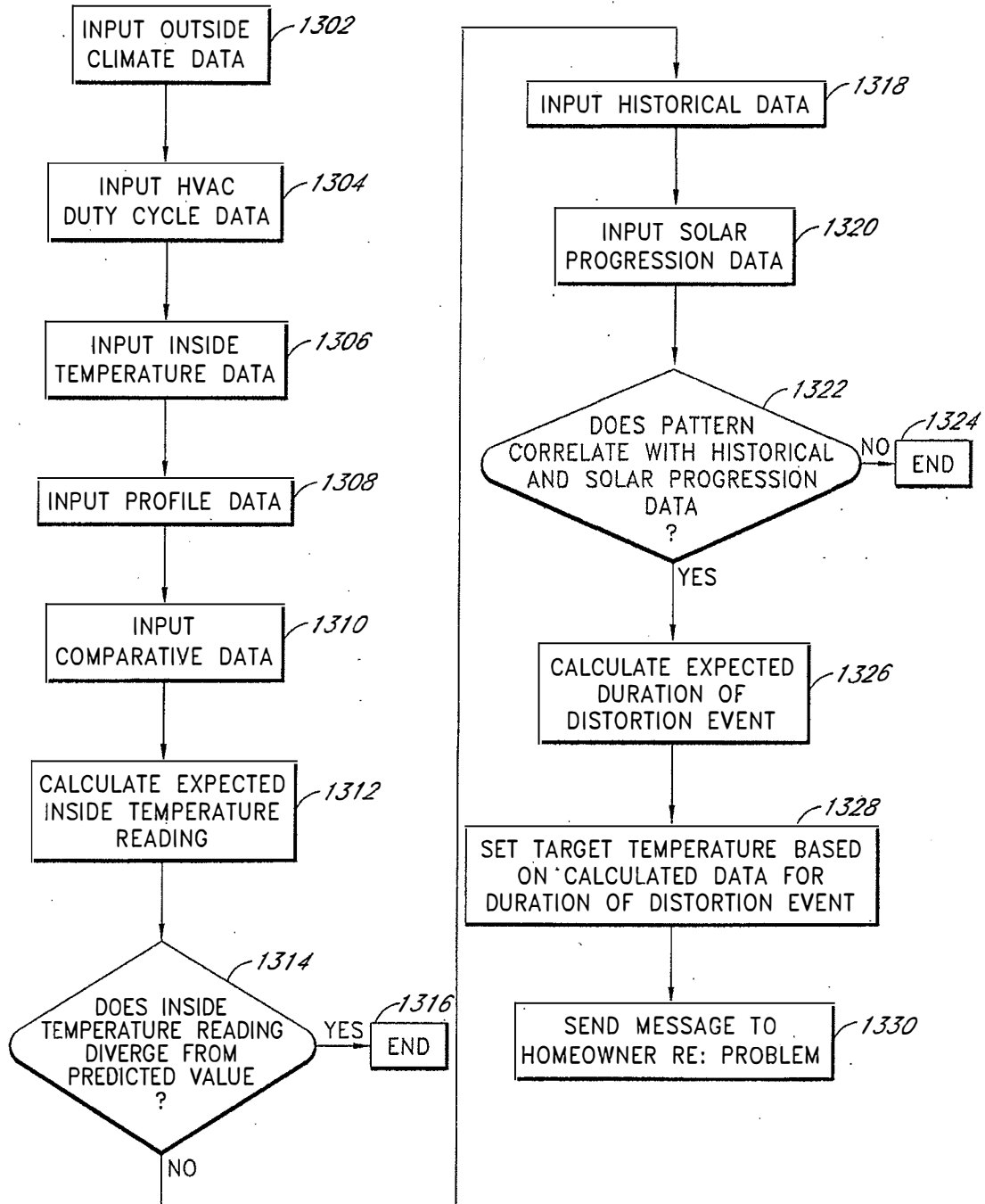


FIG. 13

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
As the below named inventor, I hereby declare that: This declaration is directed to: ☐ The attached application, or ☒ United States application or PCT international application number <u>13/861189</u> <u>April 11, 2013</u> filed on _____ The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. WARNING: Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft: Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.	
LEGAL NAME OF INVENTOR Inventor: <u>John Douglas Steinberg</u> Date (Optional): <u>12/12/13</u> Signature: _____	
Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.	

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	SYSTEM AND METHOD FOR EVALUATING CHANGES IN THE EFFICIENCY OF AN HVAC SYSTEM
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As the below named inventor, I hereby declare that:

This declaration is directed to: ☐ The attached application, or ☒ United States application or PCT international application number 13/861189
April 11, 2013
 filed on _____

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

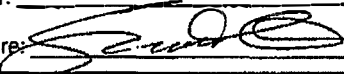
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Scott Douglas Hublou Date (Optional): 12/12/13

Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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