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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
62/177,683	03/23/2015		130			

METROM RAIL
244 TELSER RD.
LAKE ZURICH, IL 60047

CONFIRMATION NO. 8816
FILING RECEIPT



Date Mailed: 04/15/2015

Receipt is acknowledged of this provisional patent application. It will not be examined for patentability and will become abandoned not later than twelve months after its filing date. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Richard Carlson, Bull Valley, IL;

Applicant(s)

Richard Carlson, Bull Valley, IL;

Power of Attorney: None

If Required, Foreign Filing License Granted: 04/14/2015

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 62/177,683**

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Worker protection system

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

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Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same

page 1 of 3

Siemens Exhibit 1005
Siemens et al. v. Metrom Rail

effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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032315

02205 U.S. PTO

PTO/SB/16 (03-13)

Approved for use through 01/31/2014. OMB 0651-0032

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PROVISIONAL APPLICATION FOR PATENT COVER SHEET – Page 1 of 2

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No. _____

U.S. PTO**62/177683****03/23/2015**

INVENTOR(S)		
Given Name (first and middle (if any))	Family Name or Surname	Residence (City and either State or Foreign Country)
RICHARD	CARLSON	BULL VALLEY, IL

Additional inventors are being named on the _____ separately numbered sheets attached hereto.

TITLE OF THE INVENTION (500 characters max):

WORKER PROTECTION SYSTEM

Direct all correspondence to: **CORRESPONDENCE ADDRESS**

☐ The address corresponding to Customer Number: _____

OR

☒ Firm or Individual Name **METROM RAIL**

Address **244 TELSER RD.**

City LAKE ZURICH	State IL	Zip 60047
Country _____	Telephone 224-542-9972	Email RICK.CARLSON@METROM-RAIL.COM

ENCLOSED APPLICATION PARTS (check all that apply)

☒ Application Data Sheet. See 37 CFR 1.76. ☐ CD(s), Number of CDs _____

☐ Drawing(s) Number of Sheets _____ ☐ Other (specify) _____

☒ Specification (e.g., description of the invention) Number of Pages **5**

Fees Due: Filing Fee of \$260 (\$130 for small entity) (\$65 for micro entity). If the specification and drawings exceed 100 sheets of paper, an application size fee is also due, which is \$400 (\$200 for small entity) (\$100 for micro entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

METHOD OF PAYMENT OF THE FILING FEE AND APPLICATION SIZE FEE FOR THIS PROVISIONAL APPLICATION FOR PATENT

☒ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent.

☐ A check or money order made payable to the *Director of the United States Patent and Trademark Office* is enclosed to cover the filing fee and application size fee (if applicable).

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

☐ The Director is hereby authorized to charge the filing fee and application size fee (if applicable) or credit any overpayment to Deposit Account Number: _____

\$130 *ok*

TOTAL FEE AMOUNT (\$)

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This collection of information is required by 37 CFR 1.51. 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 10 hours 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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The PTO did not receive the following listed item(s) *ADS*

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PROVISIONAL APPLICATION FOR PATENT COVER SHEET – Page 2 of 2

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

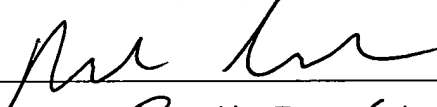
☒ No.

☐ Yes, the invention was made by an agency of the U.S. Government. The U.S. Government agency name is: _____

☐ Yes, the invention was made under a contract with an agency of the U.S. Government. The name of the U.S. Government agency and Government contract number are: _____

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SIGNATURE  DATE 3-18-15

TYPED OR PRINTED NAME RICHARD CARLSON REGISTRATION NO. _____
(if appropriate)

TELEPHONE 224-542-9992 DOCKET NUMBER _____

PROVISIONAL APPLICATION FOR UNITED STATES PATENT

TITLE

WORKER PROTECTION SYSTEM

BACKGROUND

[0001] Metrom Rail's Worker Protection System is a human-wearable train proximity warning system which will alert a railroad worker that a train is approaching. A companion device will trigger alerts and is located in either an approaching vehicle (or train), or placed by the work crew along the tracks ("wayside"). The vehicle-mounted companion device will trigger an alert when it detects it is approaching a crew equipped with the devices, as well as will alert the vehicle operator that workers are in proximity and display the number of detected workers. The way-side companion device will trigger an alert when it detects a passing train. The human-wearable devices will be powered by rechargeable batteries, and may be inserted into charging stations at the end of each day to be charged for work the following day. The vehicle-mounted device is vehicle powered. The way-side device is battery powered.

COMPONENTS

[0002] There are three main components to the Worker Protection System (WPS) system:

Portable Alert Device (PAD) - This device is small, light, low profile so as not to impede normal working activities. It includes an audible warning alarm, visual LED indicator, and an acknowledgement switch to silence an alert. The housing will include various features to support multiple mounting locations. The PAD provides at least a 15 second warning in line of sight conditions, when a train approaches at 60 mph. A downloadable log file is available to allow examination of alerts and other events and activities. The PAD also contains an accelerometer which can be utilized to "power down" when the device is not being worn to save battery power, then "power up" when motion is detected. This module will be worn by either a clip, arm band or belt clip.

Vehicle Alert Module (VAM) - This device consists of either a portable or permanently mounted transceiver on a locomotive or other vehicle operating on railroad tracks which broadcasts a signal that interfaces with the Portable Alert Device (PAD). When a worker is detected, the transceiver user interface displays and sounds a warning to the vehicle operator, indicates the quantity of workers detected, and the approximate distance to the workers. A downloadable log file is available which contains alerts, acknowledgments, time, location, distances to workers and traveling speed within work zone.

Wayside Detection Unit (WDU) – This device is attached to a tripod and is temporarily placed near the track (no closer than four feet to the nearest rail) at each end of a work zone. The WDU broadcasts a signal when a train or vehicle passes. This device can be utilized in areas where trains or other vehicles may not have Vehicle Alert Modules (VAMs).

OPERATION

[0003] The system is designed to operation using three different scenarios: In scenario one, a train is equipped with a VAM and the VAM interfaces with the worker worn PAD to detect if a train is proximity where an alarm is activated. Scenario two consists of a worker worn PAD, which is then activated by a wayside WDU, which broadcasts an alarm, picked up by PAD's when a train is in proximity. The third activation scenario would be a worker worn PAD activated by a system which contained WDU's as well as train mounted VAM's for redundancy.

[0004] The system functionally operates upon a radio based time of flight system. The PAD's, VAM's and WDU's all contain a similar time of flight radio system, which when activated, broadcasts a signal which can then be decoded to discern the distance between targets, how many targets, or if the threat is moving away or towards the targets.

[0005] The modules also contain an integrated GPS module which is utilized for both time stamps in logging functions, as well as locational coordinates of the users.

[0006] The system also contains a logging function which can be accessed either remotely or by a wired connection. This log file will show system functionality, location, speed, alarm status, alarm acknowledgement, battery life and other parameters.

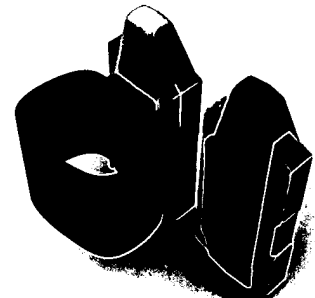
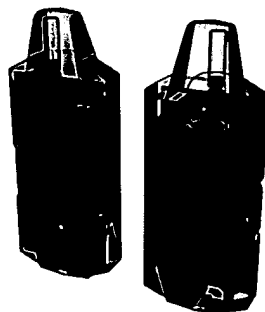
[0007] A version of this system will also be designed and utilized for other industries such as but not limited to the construction industry. This system for instance, can be used to keep workers away from heavy equipment, obstructions such as excavations, or used as a geo-fence to keep out of secure or sensitive areas.

[0008] The PAD and WDU modules will be battery powered. The PAD modules will be stored and transported in charging rack which will allow for bulk charging and if desired data downloads.

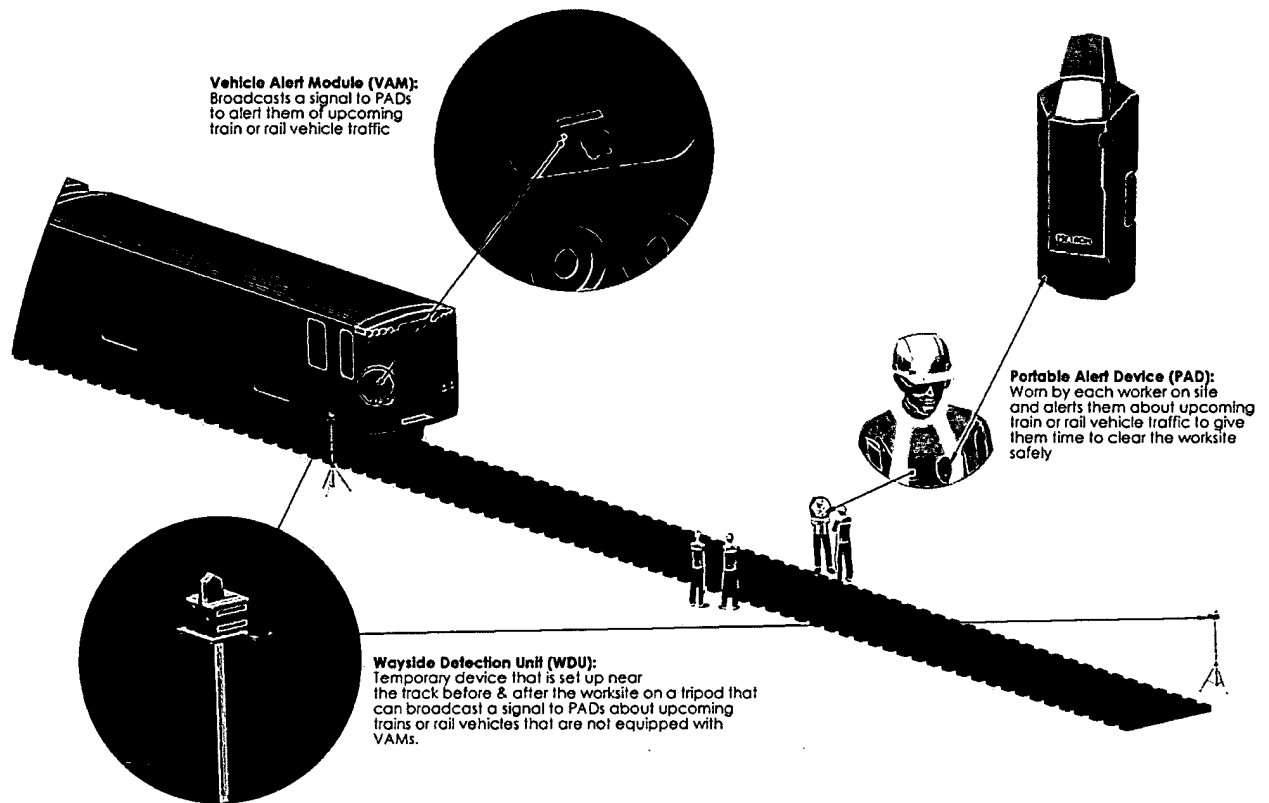
[0009] Drawings



PAD Module



System Layout



PATENT APPLICATION SERIAL NO. _____

**U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET**

03/24/2015 EEKUBAY1 00000032 62177683

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