FORM 2

THE PATENT ACT, 1970

(39 of 1970)

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The Patent Rules, 2003

COMPLETE SPECIFICATION

(See section 10 and rule 13)

1. TITLE OF THE INVENTION:

Bio-Gas Cylinder Monitoring and Replacing System in Mobile Bio-Toilets

2. APPLICANT:

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3. PREAMBLE TO THE DESCRIPTION:

The following specification particularly describes the invention and the manner in which it is to be performed:

4. DESCRIPTION:

Field of the invention:

[0001] The present disclosure generally relates to the field of bio-toilets, and more particularly relates to a e-movable bio-toilet incorporated with a monitoring and replacing system that alerts the driver to replace the cylinder once it is filled and simultaneously transmits wirelessly the bio-gas availability information to the gas inventory in real-time.

Background of the invention:

[0002] With the rise in continuous economic development and a substantial increase in the city's floating population i.e., especially in the downtown area, crowded various public areas, buildings, and land appreciation faces difficulty in having a suitable location to build fixed public toilets. Due to the lack of availability of public toilets and proper hygiene in them leads to cause great inconvenience to life which is currently the major problem of ordinary people in everyday life that exists.

[0003] Bio-toilet is a decomposition mechanized toilet system that aids to decompose human excretory waste in the digester tank using specific high graded bacteria i.e., either aerobic or anaerobic and further convert it into methane gas, carbon dioxide gas, and water. These bio-toilets are portable and movable as well as make the toilets more user friendly. These bio-toilets can be used where there is no water and sewage.

[0004] The bio-digester is a device or structure in which the digestion of organic waste matter by bacteria takes place with the production of a burnable biogas and nutrient-rich slurry. For instance, the bio digester will convert table scraps from campus dormitories, manure from the campus dairy and plant waste from agricultural research fields into electricity.

[0005] Conventional movable bio-toilet systems decompose human excretory waste in the digester tank and convert it into methane gas, carbon dioxide gas, and water. But, the system does not have the ability to alert the driver to replace the cylinder when it is filled and the availability of gas information is not transmitted in real-time to the inventor thereby

aids to wastage of gas i.e., the gas is not utilized and supplied to the consumer when essential.

[0006] Therefore, there is a need for an e-movable bio-toilet incorporated with a monitoring and replacing system that alerts the driver to replace the cylinder once it is filled. Such a bio-toilet vehicle must have the ability to wirelessly communicate the availability of methane gas weight data to driver and methane gas inventory at a far distance in real-time. There is a need for transmitting the signal to the driver or inventory either in audible or visual manner with color representation of filling level indication of methane gas in the cylinder. There is a need for a bio-toilet which minimizes pollution by using electrical energy as a power source.

Objectives of the invention:

[0007] The primary objective of the invention is to provide an e-movable bio-toilet incorporated with a monitoring and replacing system that alerts the driver to replace the cylinder once it is filled.

[0008] The other objective of the invention is to wirelessly communicate the availability of methane gas weight data to driver and methane gas inventory at a far distance in real-time.

[0009] Another objective of the invention is to transmit the signal to the driver or inventory either in audible or visual manner with color representation of filling level indication of methane gas in the cylinder.

[0010] Yet another objective of the invention is to provide a bio-decomposer that aids to convert waste matter into methane gas.

[0011] Another objective of the invention is to provide a system which aids to provide support to physically handicapped people.

[0012] Further objective of the invention is to minimize pollution by using electrical energy as a power source.

[0013] Yet another objective of the invention is to generate good revenue by selling the methane gas that is extracted from the waste material.

Summary of the Invention:

[0014] The disclosure proposes a bio-gas cylinder monitoring and replacing system in mobile bio-toilets. The following presents a simplified summary in order to provide a basic understanding of some aspects of the claimed subject matter. This summary is not an extensive overview. It is not intended to identify key/critical elements or to delineate the scope of the claimed subject matter. Its sole purpose is to present some concepts in a simplified form as a prelude to the more detailed description that is presented later.

[0015] In order to overcome the above deficiencies of the prior art, the present disclosure is to solve the technical problem to provide an e-movable bio-toilet incorporated with monitoring and replacing system that alerts the driver to replace the cylinder once it is filled and simultaneously transmits wirelessly the bio-gas availability information to the gas inventory in real-time.

[0016] According to an aspect, the disclosure proposes a bio-gas cylinder monitoring and replacing system in mobile bio-toilets. The system comprises a vehicle body, a toilet cabinet, a replaceable bio-gas cylinder, and a weight detection means, a pair of visual indication means, a signal transmitting means, and a dashboard controlling means. The system can be implemented with a website or a mobile application to establish wirelessly a connection in between bio-toilet inventory and consumers that supplies bio-gas on time. The bio-gas in the bio-gas cylinder is utilized for various purposes such as cooking and the like.

[0017] The toilet cabinet is configured with a bio-toilet positioned behind the driving cabinet of the vehicle body. The replaceable bio-gas cylinder that is connected to the bio-toilet is configured to collect bio-gas produced from the bio-toilet and the weight detection means positioned below the replaceable bio-gas cylinder is configured to detect the weight of the bio-gas cylinder. The pair of visual indication means fitted on the weight detection means is configured to indicate the status of gas volume in the bio-gas cylinder. In specific, pair of visual indication means aids to represent pink colour when said bio-gas cylinder is full and represents green light colour when the bio-gas cylinder is empty or any other colour representation can be used to indicate the status of gas volume in the bio-gas cylinder. The

signal transmitting means arranged in connection with the weight detection means is configured to transmit the detected weight of the bio-gas cylinder.

[0018] The dashboard controlling means is configured to receive the detected weight of the bio-gas cylinder and alert the driver when it is filled and simultaneously transmit the bio-gas availability information to gas inventory in real-time. Specifically, dashboard controlling means comprises a signal receiving antenna that receives the detected weight signal of the bio-gas cylinder. The dashboard controlling means is stored with predetermined values of bio-gas cylinder such as weight of the empty bio-gas cylinder, stored capacity of bio-gas cylinder (i.e., volume) and thereof. The dashboard controlling means aids to analyze bio-gas level in the bio-gas cylinder by correlating predetermined values of the bio-gas cylinder with the detected weight of the bio-gas cylinder. The dashboard controlling means alerts the driver either when the bio-gas cylinder is filled either audibly or visually manner with colour representation or buzzer or the like.

[0019] Further objects and advantages of the present invention will be apparent from a study of the following portion of the specification, the claims, and the attached drawings.

Detailed Description of Drawings:

[0020] The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate an embodiment of the invention, and, together with the description, serve to explain the principles of the invention.

[0021] FIG. 1A illustrates a perspective view of bio-gas cylinder monitoring and replacing system in mobile bio-toilets in accordance to an embodiment of the invention.

[0022] FIG. 1B illustrates a bio-gas cylinder monitoring and replacing system incorporated with a commutative weighing detection means in accordance to an embodiment of the invention.

[0023] FIG. 2 illustrates a multi-functional indication means in accordance to an embodiment of the invention.

Detailed Invention Disclosure:

[0024] Various embodiments of the present invention will be described in reference to the accompanying drawings. Wherever possible, the same or similar reference numerals are used in the drawings and the description to refer to the same or like parts or steps.

[0025] The present disclosure has been made with a view towards solving the problem with the prior art described above, and it is an object of the present invention is to provide an e-movable bio-toilet incorporated with a monitoring and replacing system that alerts the driver to replace the cylinder once it is filled and simultaneously transmits wirelessly the bio-gas availability information to the gas inventory in real-time.

[0026] According to an exemplary embodiment of the invention, Fig. 1A and 1B refers to a bio-gas cylinder monitoring and replacing system 100 incorporated with a commutative weighing detection means 104 in mobile bio-toilets. The system 100 comprises a vehicle body 101, a toilet cabinet 102, a replaceable bio-gas cylinder 103, and a weight detection means 104, a pair of visual indication means 105, a signal transmitting means 106, and a dashboard controlling means (not shown). The system 100 can be implemented with a website or a mobile application to establish wirelessly a connection in between bio-toilet inventory and consumer that supplies bio-gas on time. The bio-gas in the replaceable bio-gas cylinder 103 is utilized for various purposes such as cooking and the like.

[0027] The toilet cabinet 102 is configured with a bio-toilet positioned behind the driving cabinet of the vehicle body 101. The replaceable bio-gas cylinder 103 that is connected to the bio-toilet is configured to collect bio-gas produced from the bio-toilet and the weight detection means positioned 104 below the replaceable bio-gas cylinder 103 is configured to detect the weight of the replaceable bio-gas cylinder 103.

[0028] The pair of visual indication means 105 fitted on the weight detection means 104 is configured to indicate the status of gas volume in the bio-gas cylinder 103. In specific, pair of visual indication means 105 aids to represent pink colour when the bio-gas cylinder 103 is full and represents green light colour when the bio-gas cylinder 103 is empty or any other

colour representation can be used to indicate the status of gas volume in the replaceable bio-gas cylinder 103. The signal transmitting means 106 arranged in connection with the weight detection means 104 is configured to transmit the detected weight of the bio-gas cylinder 103.

[0029] The dashboard controlling means is configured to receive the detected weight of the bio-gas cylinder 103 and alert the driver when it is filled and simultaneously transmit the bio-gas availability information to gas inventory in real-time. Specifically, dashboard controlling means comprises a signal receiving antenna that receives the detected weight signal of the bio-gas cylinder 103. The dashboard controlling means is stored with predetermined values of replaceable bio-gas cylinder 103 such as weight of the empty bio-gas cylinder, stored capacity of bio-gas cylinder (i.e., volume) and thereof. The dashboard controlling means aids to analyze bio-gas level in the bio-gas cylinder 103 by correlating predetermined values of the bio-gas cylinder with the detected weight of the bio-gas cylinder 103. The dashboard controlling means alerts the driver either when the bio-gas cylinder 103 is filled either in an audibly or visually manner with colour representation or buzzer or the like.

[0030] According to an exemplary embodiment of the invention, Fig. 2 refers to a multi-functional indication means 200. The controlling means comprise a signal receiving antenna that receives the detected weight of the bio-gas cylinder and alert 201 the driver when it is filled and simultaneously transmit the bio-gas availability information to gas inventory in real-time. Specifically, controlling means aids to analyze bio-gas level 202 in the bio-gas cylinder by correlating predetermined values of the bio-gas cylinder with the detected weight of the bio-gas cylinder and alerts the driver either when the bio-gas cylinder is filled either in audible or visual manner with colour representation or buzzer or the like. The system incorporates a battery level indicator 203 that aids to display the battery level indication time to time.

[0031] Thus, the proposed disclosure proposes an e-movable bio-toilet incorporated with monitoring and replacing system that alerts the driver to replace the cylinder once it is filled and simultaneously transmits wirelessly the bio-gas availability information to the gas

inventory in real-time. The system transmits the signal to the driver or the inventory either in an audibly or visually manner with colour representation of filling level indication of methane gas in the cylinder. The bio-gas monitoring and replacing system minimizes pollution by using electrical energy and generates good revenue by selling the methane gas that is extracted from the waste material.

[0032] It will readily be apparent that numerous modifications and alterations can be made to the processes described in the foregoing examples without departing from the principles underlying the invention, and all such modifications and alterations are intended to be embraced by this application.

5. CLAIMS:

We Claim:

1. A bio-gas cylinder monitoring and replacing system in mobile bio-toilets, comprising:

a vehicle body;

a toilet cabinet configured with a bio-toilet positioned behind the driving cabinet of said vehicle body;

a replaceable bio-gas cylinder connected to said bio-toilet configured to collect bio-gas produced from said bio-toilet;

a weight detection means positioned below said replaceable bio-gas cylinder configured to detect weight of said bio-gas cylinder;

a pair of visual indication means fitted on said weight detection means configured to indicate the status of gas volume in said bio-gas cylinder;

a signal transmitting means arranged in connection with said weight detection means configured to transmit said detected weight of said bio-gas cylinder; and

a dashboard controlling means configured to receive said detected weight of said bio-gas cylinder and alert the driver when it is filled and simultaneously transmit the bio-gas availability information to bio-gas inventory in real-time,

whereby said bio-gas monitoring and replacing system minimizes pollution by using electrical energy and generates a good revenue by selling the methane gas that is extracted from the waste material.

2. The bio-gas cylinder monitoring and replacing system in mobile bio-toilets as claimed in claim 1, wherein said pair of visual indication means aids to represent pink color when said bio-gas cylinder is full and represent green light colour when said bio-gas cylinder is empty or any other colour representation can be used to indicate the status of gas volume in said bio-gas cylinder.

3. The bio-gas cylinder monitoring and replacing system in mobile bio-toilets as claimed in claim 1, wherein said dashboard controlling means comprise a signal receiving antenna that receives said detected weight signal of said bio-gas cylinder.

4. The bio-gas cylinder monitoring and replacing system in mobile bio-toilets as claimed in claim 1, wherein said dashboard controlling means is stored with predetermined values of bio-gas cylinder such as weight of the empty bio-gas cylinder, stored capacity of bio-gas cylinder (i.e., volume) and thereof.

5. The bio-gas cylinder monitoring and replacing system in mobile bio-toilets as claimed in claim 1, wherein said dashboard controlling means aids to analyze bio-gas level in said bio-gas cylinder by correlating predetermined values of said bio-gas cylinder with said detected weight of said bio-gas cylinder.

6. The bio-gas cylinder monitoring and replacing system in mobile bio-toilets as claimed in claim 1, wherein said dashboard controlling means alerts the driver either when the bio-gas cylinder is filled either in audible or visual manner with color representation or buzzer or the like.

7. The bio-gas cylinder monitoring and replacing system in mobile bio-toilets as claimed in claim 1, wherein said system can be implemented with a website or a mobile application to establish wirelessly connection in between bio-toilet inventory and consumer that supplies bio-gas on time.

8. The bio-gas cylinder monitoring and replacing system in mobile bio-toilets as claimed in claim 1, wherein said bio-gas in said bio-gas cylinder is utilized for various purposes such as cooking and the like.

6. DATE AND SIGNATURE:

Dated this 12th day of December, 2019

7. ABSTRACT:

Title: Bio-Gas Cylinder Monitoring and Replacing System in Mobile Bio-Toilets

The present disclosure discloses an e-movable bio-toilet incorporated with monitoring and replacing system that alerts the driver to replace the cylinder once it is filled and simultaneously transmits wirelessly the bio-gas availability information to the gas inventory in real-time. The system 100 comprises a vehicle body 101, a toilet cabinet 102, a replaceable bio-gas cylinder 103, and a weight detection means 104, a pair of visual indication means 105, a signal transmitting means 106, and a dashboard controlling means. The system transmits the signal to the driver or the inventory either in an audibly or visually manner with colour representation of filling level indication of methane gas in the cylinder. The bio-gas monitoring and replacing system minimizes pollution by using electrical energy and generates good revenue by selling the methane gas that is extracted from the waste material.