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(19) **United States**(12) **Patent Application Publication****Iida et al.**(10) **Pub. No.: US 2009/0050630 A1**(43) **Pub. Date: Feb. 26, 2009**(54) **MOBILE OBJECT MANAGING DEVICE AND METHOD**(76) Inventors: **Yasuyuki Iida, Aichi (JP); Nobuo Kobayashi, Aichi (JP)**

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B65D 88/12 (2006.01)(52) **U.S. Cl.** **220/562**(57) **ABSTRACT**

To improve the management quality of a fuel tank by managing a set of relevant information on the fuel tank and relevant information on a mobile object associated with each other and allowing a history of use of the fuel tank to be trackable, a mobile object with a fuel tank, has control means for storing the fuel tank relevant information stored in first storage means provided at the fuel tank, and the mobile object relevant information stored in second storage means provided at the mobile object in the first storage means and/or the second storage means in association with each other. The fuel tank relevant information includes at least one of information on the owner of the fuel tank, information on production of the fuel tank, information on an attribute of fuel to be filled, and information on the filling work, and the mobile object relevant information includes at least one of information on the owner of the mobile object, the serial number of the mobile object, and the registration number of the mobile object.

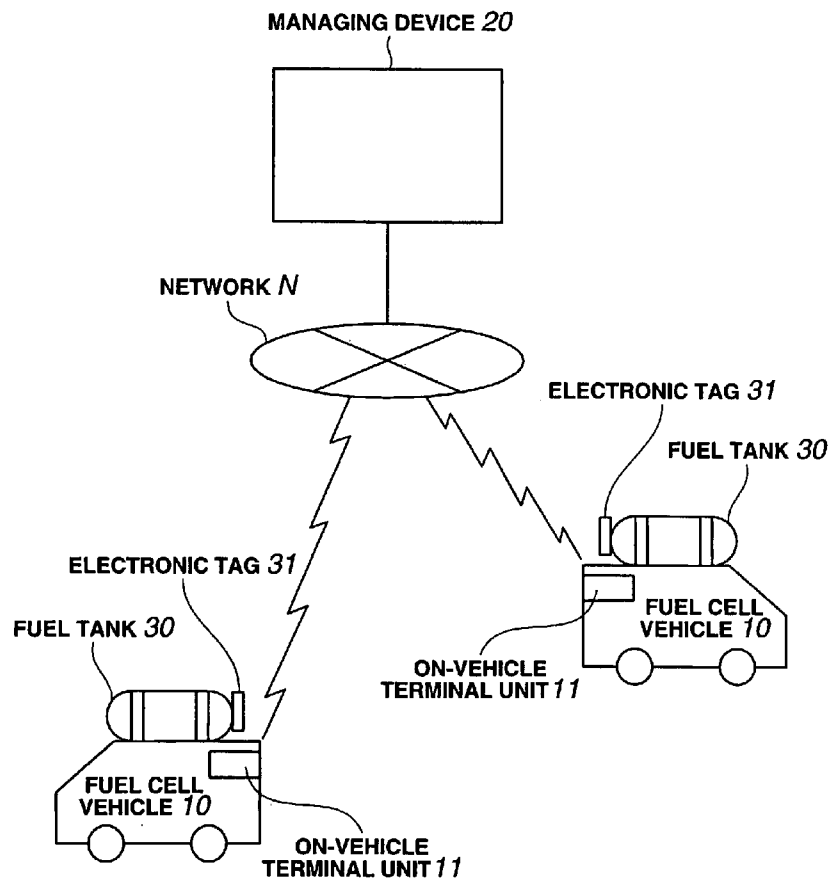
**MANAGING SYSTEM 100**

FIG.1

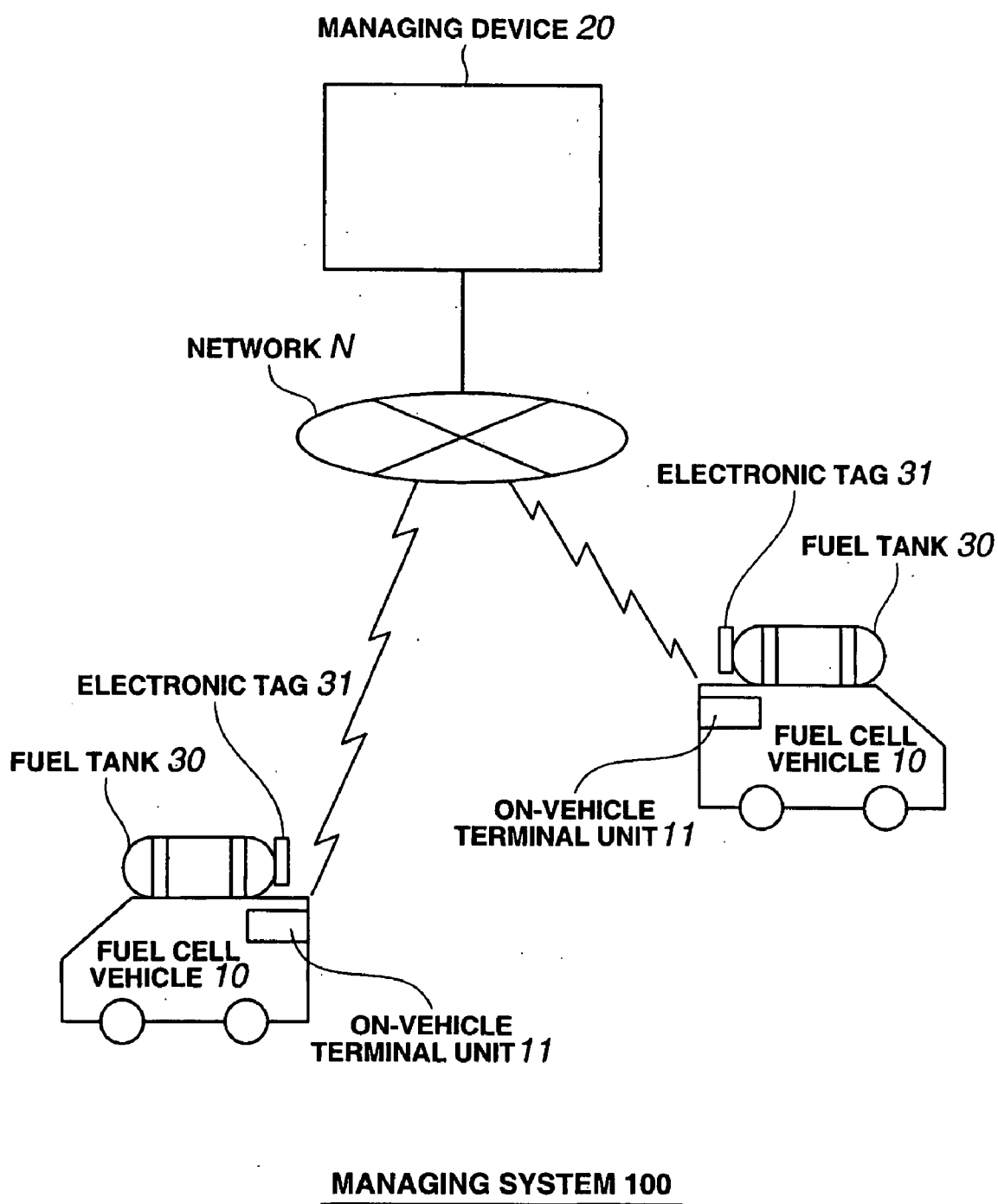
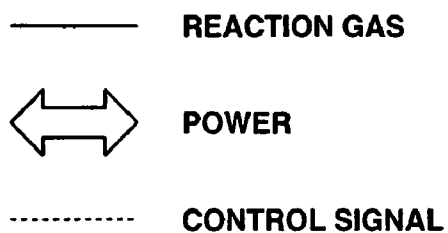
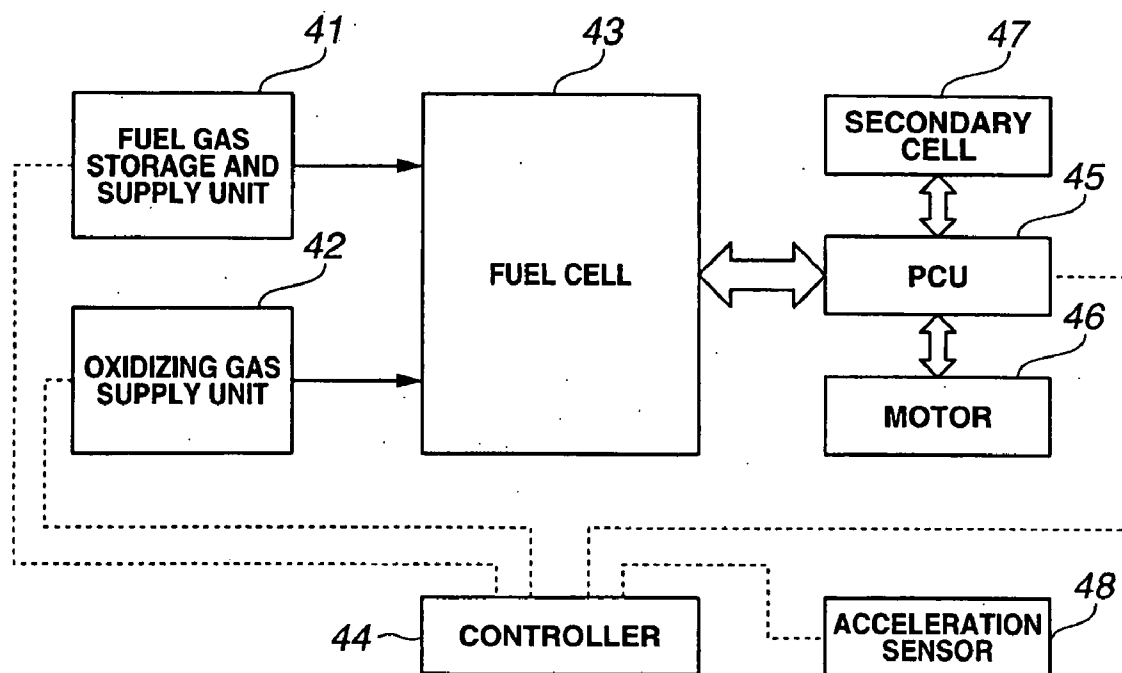


FIG.2



FUEL CELL SYSTEM 40

FIG.3A

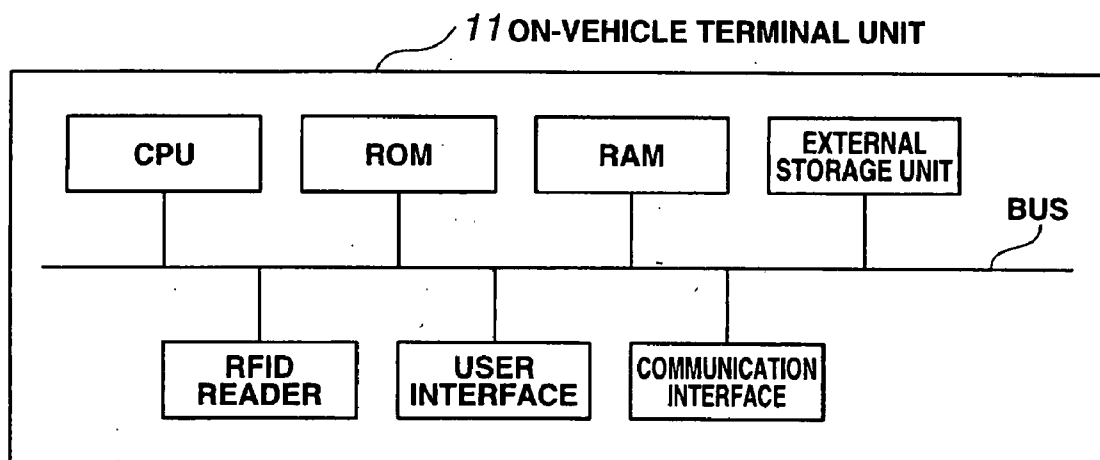


FIG.3B

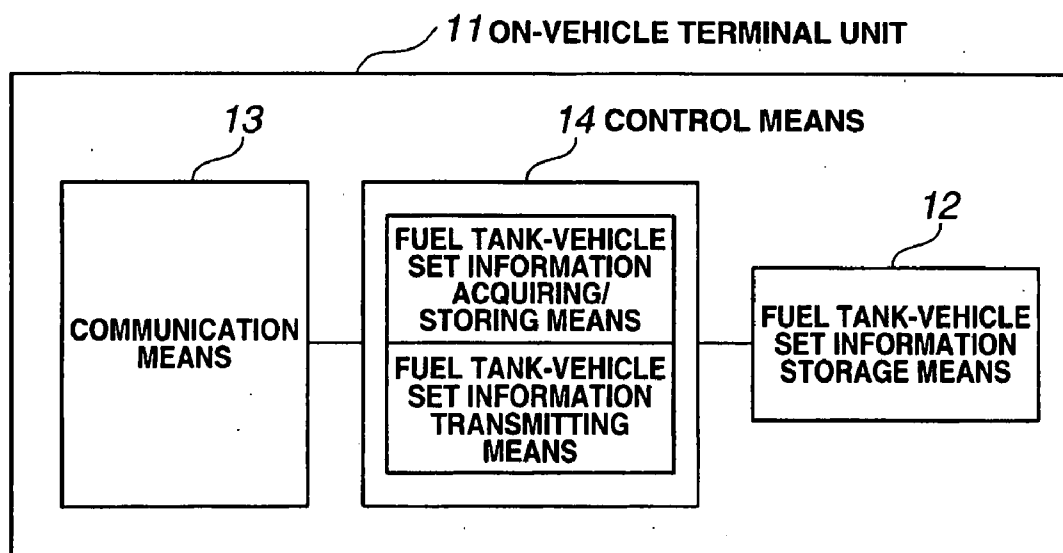


FIG.4A

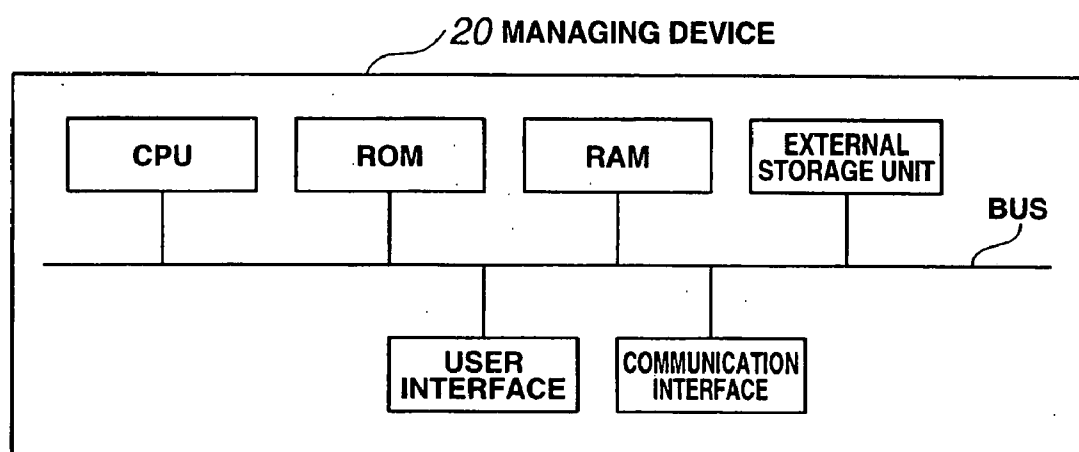


FIG.4B

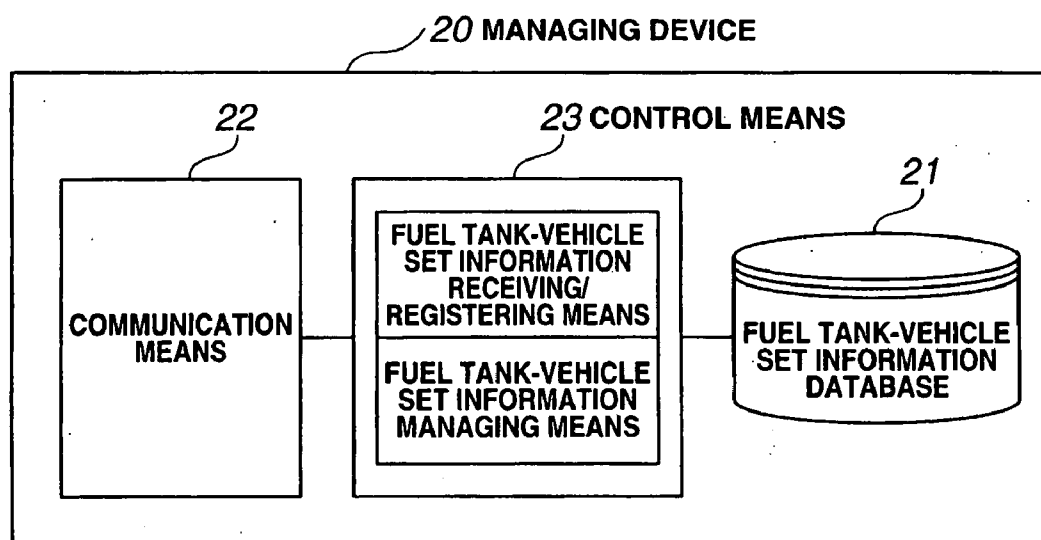


FIG.5

| DATE INFORMATION | VEHICLE RELEVANT INFORMATION | | | FUEL TANK RELEVANT INFORMATION | | | |
|---------------------|------------------------------|----------------|------------------------|--------------------------------|----------------------------------|--------------|-----------------|
| | OWNER | BODY NUMBER | NUMBER PLATE NUMBER | OWNER | SERIAL NUMBER PRODUCTION DATE | FUEL TYPE | FILLING DATE |
| 2005 01/01 | | | | | | | |
| 2005 02/01 | | | | | | | |
| 2005 03/01 | | | | | | | |

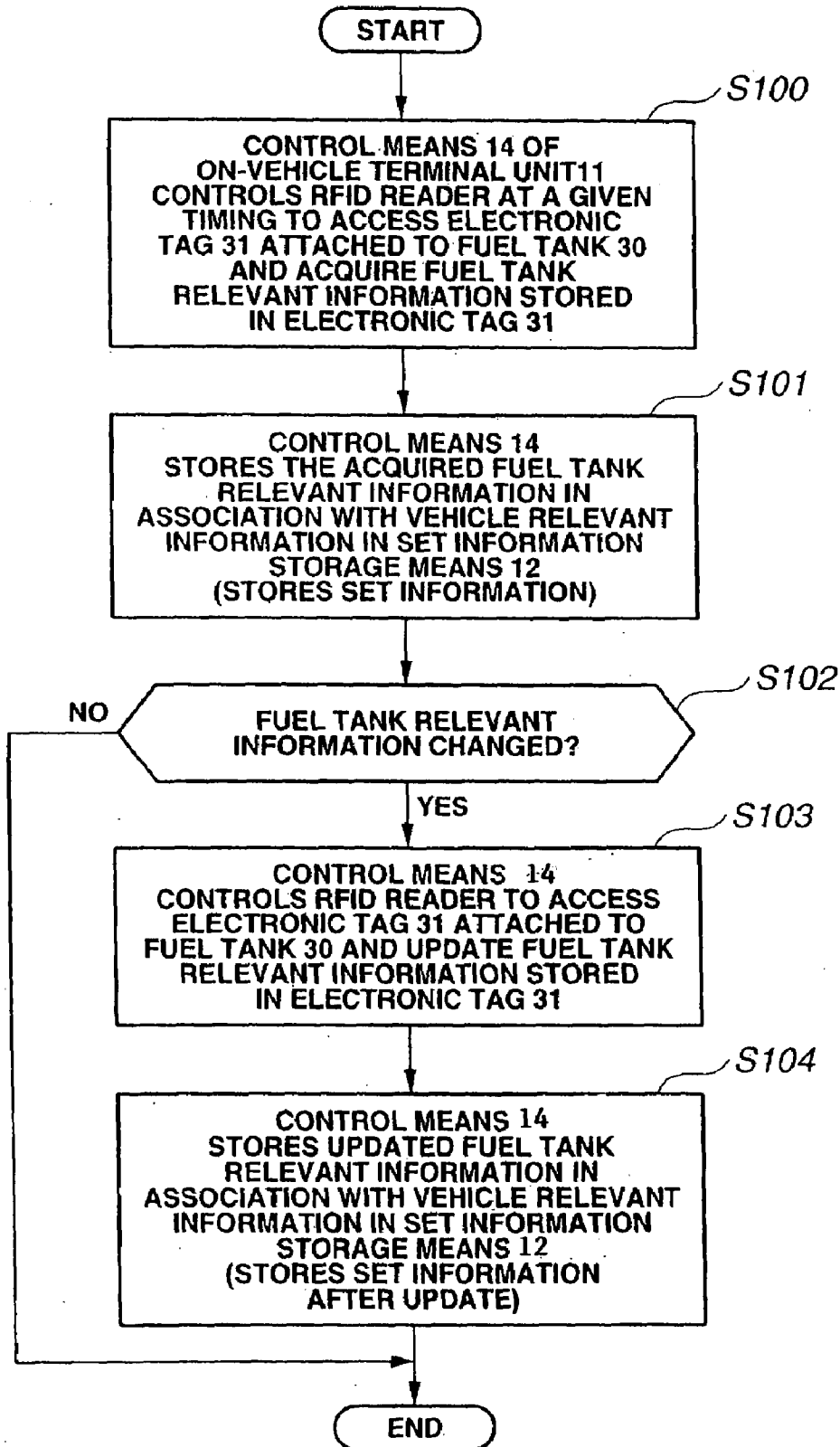
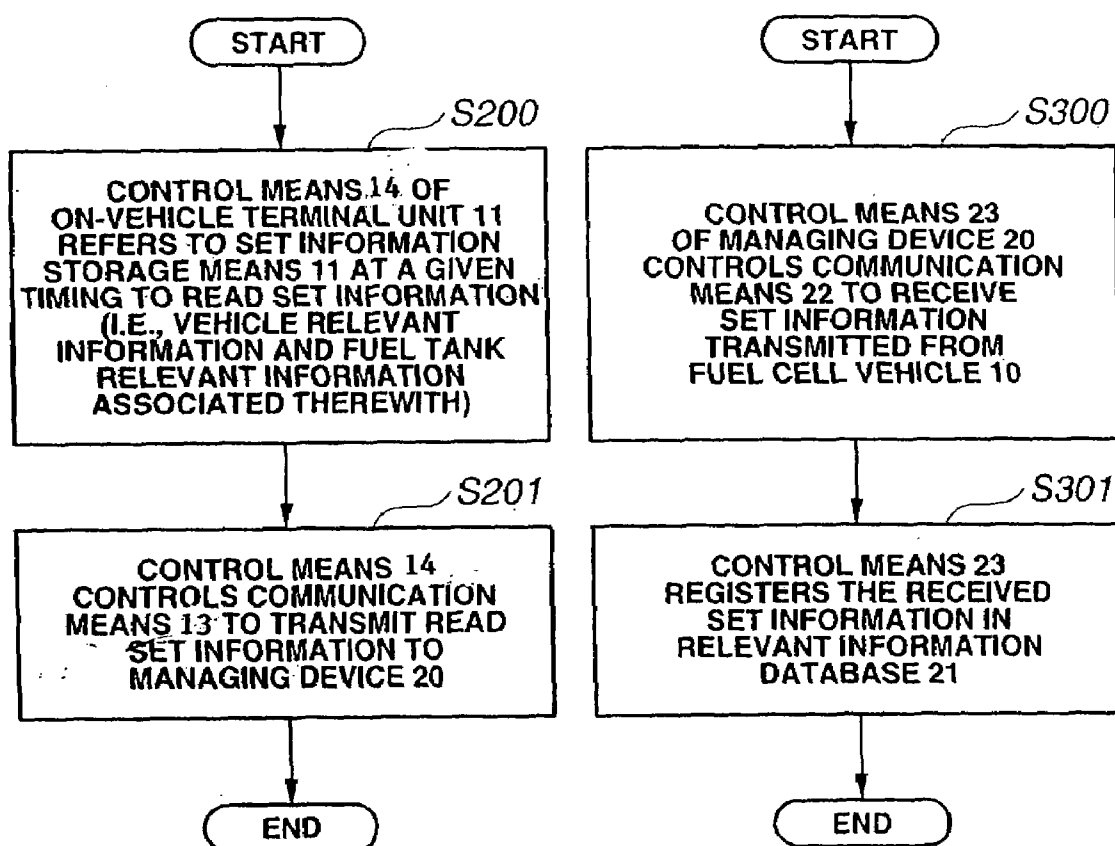
FIG.6

FIG.7

MOBILE OBJECT MANAGING DEVICE AND METHOD

[0001] This is a 371 national phase application of PCT/JP2006/307517 filed 4 Apr. 2006, claiming priority to Japanese Patent Application No. 2005-110733 filed 7 Apr. 2005, the contents of which are incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present invention relates to a mobile object (e.g., vehicle) with a fuel tank, and a management technique for relevant information on the fuel tank and the mobile object, which is suitable when the fuel tank is consecutively used over a plurality of mobile objects.

BACKGROUND OF THE INVENTION

[0003] Recently, development of electric automobiles has progressed, and a vehicle mounted with a fuel cell as the power source for a motor has been proposed (see Japanese Patent Application Laid-Open No. 2001-224105). A fuel cell is a unit which generates power by the chemical reaction of hydrogen and oxygen finally supplied as fuel. When hydrogen is used for fuel, water vapor is emitted from the fuel cell, and does not contain a toxic component, so that the hydrogen is environmentally advantageous.

[0004] Information on the manufacturer name, the production date, the fuel type, the owner, etc. of a fuel tank (hydrogen tank) which is mounted in a fuel cell vehicle should be managed to adequately check the fatigue and degradation of members. With regard to the current owner or the like of a fuel tank, for example, Container Safety Regulations, Chapter 4, Article 10 defines that a tank should have an owner or the like clearly indicated thereon. Information on a fuel filling date is often managed on a management ledger by a dealer or the like.

SUMMARY OF THE INVENTION

[0005] In general, a fuel tank (particularly, a fuel gas tank, compressed-gas tank) has various kinds of relevant information on the fuel tank, such as the manufacturer, production date, serial number and fuel type, integrated with the fuel tank (as a set) by means of an indication member or an electronic storage medium.

[0006] When such a fuel tank is mounted in a mobile object (including an object which actively moves, such as a vehicle like an automobile or train, a ship, an airplane, a movable robot, as well as an object which passively moves accompanying another object, such as a portable electronic device) for use, it is desirable to be able to track what kind of a fuel tank is mounted in what kind of mobile object and how the fuel tank is used.

[0007] Conventionally, however, while a fuel tank alone is managed by referring to the indication member or the like, the fuel tank and the mobile object are not managed in association with each other. This makes it difficult to carry out the tracking.

[0008] Accordingly, it is an object of the present invention to improve the management quality of a fuel tank by managing a set of relevant information on the fuel tank and relevant information on a mobile object associated with each other and allowing a history of use of the fuel tank to be trackable.

[0009] The present inventors have made studies to achieve the object, and found that the following problems were present.

[0010] Conventionally, once a fuel tank is mounted in a mobile object like a vehicle, the fuel tank is hardly removed and used in another vehicle or the like again, so that there is no system which manages the history of use of the fuel tank when the fuel tank is consecutively used over a plurality of vehicles or the like. Even if the fuel filling date or the like for each fuel tank is actually managed on a management ledger by a dealer or the like, there is generally no management on how the fuel tank has been used in what vehicles or the like.

[0011] Due to the recent progress of the general commercial use of fuel tanks, however, fuel cells are used in various situations, so that it is expected that remounting a fuel tank in another vehicle or the like for use within a period of its given life will be increasing. When a fuel-cell mounted vehicle is used as a business vehicle, such as a taxi, for example, it is well conceivable to dynamically (variably) assign a fuel tank to a vehicle to be used therein on the premise that the fuel tank is shared by a plurality of vehicles.

[0012] Under such a circumstance, it is desirable to be able to continuously manage the history of use of a fuel tank over a plurality of vehicles or the like so that the fatigue, degradation, etc. of members can be adequately checked.

[0013] It is therefore an object of the present invention to ensure the traceability on a fuel tank and to provide a system capable of adequately managing the history of use of the fuel tank even when the fuel tank is consecutively used over a plurality of vehicles or the like.

[0014] A mobile object with a fuel tank according to the present invention comprises storage means for storing fuel tank relevant information on the fuel tank and mobile object relevant information on the mobile object in association with each other.

[0015] A mobile object with the fuel tank according to the present invention comprises control means for storing the fuel tank relevant information stored in first storage means provided at the fuel tank, and the mobile object relevant information stored in second storage means provided at the mobile object in the first storage means and/or the second storage means in association with each other.

[0016] It is desirable that the fuel tank relevant information should include at least one of information on an owner of the fuel tank, information on production of the fuel tank, information on an attribute of fuel to be filled, and information on the filling work, and the mobile object relevant information should include at least one of information on an owner of the mobile object, a serial number of the mobile object, and a registration number of the mobile object.

[0017] It is desirable that the fuel tank should be a fuel gas tank, and that the mobile object should be a fuel cell vehicle.

[0018] It is preferable that the control means should acquire the fuel tank relevant information referring to the first storage means, and store the fuel tank relevant information in the second storage means in association with the mobile object relevant information. It is also preferable that the control means should acquire the mobile object relevant information referring to the second storage means, and store the mobile object relevant information in the first storage means in association with the fuel tank relevant information.

[0019] It is preferable that the control means should execute a process of storing the fuel tank relevant information and the

mobile object relevant information in association with each other based on a timing at which the fuel tank is mounted in the mobile object.

[0020] It is preferable that the control means should execute a process of storing the fuel tank relevant information and the mobile object relevant information in association with each other based on a timing at which a fuel filling work on the fuel tank is executed.

[0021] It is preferable that further, the control means should control communication means to transmit a set of the fuel tank relevant information and the mobile object relevant information corresponding thereto, stored in the first storage means or the second storage means, to a managing device located outside the mobile object.

[0022] A managing device according to the present invention comprises means for receiving a set of relevant information on the fuel tank mounted in the mobile object and mobile object relevant information on the mobile object, transmitted from the mobile object; and means for registering the fuel tank relevant information and the mobile object relevant information included in the received set in a database in association with each other.

[0023] A managing method for a fuel tank mounted in the mobile object according to the present invention comprises a step of storing fuel tank relevant information stored in first storage means provided at the fuel tank, and mobile object relevant information stored in second storage means provided at the mobile object in the first storage means and/or the second storage means in association with each other when the fuel tank is mounted in the mobile object; and a step of transmitting a set of the fuel tank relevant information and the mobile object relevant information corresponding thereto, stored in the first storage means or the second storage means, to a managing device located outside the mobile object.

[0024] A program according to the present invention executes individual steps of the managing method of the invention on a computer. The program of the invention can be installed or loaded into a computer from various kinds of recording mediums, such as a CD-ROM, a magnetic disk, and a semiconductor memory, or as it is downloaded over a communication network.

[0025] In the present specification, “means” does not simply mean physical means but includes a case where the functions of the means are achieved by software. The functions of single means may be realized by two or more physical means, or the functions of two or more means may be realized by single physical means.

[0026] The present invention can improve the management quality of a fuel tank by managing a set of relevant information on the fuel tank and relevant information on a mobile object associated with each other and allowing a history of use of the fuel tank to be trackable.

[0027] The present invention can ensure the traceability on a fuel tank and provide a system capable of adequately managing the history of use of the fuel tank even when the fuel tank is consecutively used over a plurality of vehicles or the like.

BRIEF DESCRIPTION OF DRAWINGS

[0028] FIG. 1 is a block diagram showing the schematic configuration of a managing system 100;

[0029] FIG. 2 is a structural diagram of the essential portions of a fuel cell system equipped in a vehicle according to a present embodiment;

[0030] FIGS. 3A and 3B are block diagrams showing the configuration of an on-vehicle terminal unit 11;

[0031] FIGS. 4A and 4B are block diagrams showing the configuration of a managing device 20;

[0032] FIG. 5 is a diagram for explaining the data structures of a set information storage means 12 and a set information database 21;

[0033] FIG. 6 is a flowchart for explaining the operation of the managing system 100; and

[0034] FIG. 7 is a flowchart for explaining the operation of the managing system 100.

DETAILED DESCRIPTION

[0035] An embodiment of the present invention will now be described with reference to the accompanying drawings. While the type of mobile object in which a fuel tank is mounted can be determined according to the design according to the invention, the following description will be given of an example where a fuel tank is mounted into a fuel cell vehicle.

[0036] FIG. 1 is a block diagram showing the schematic configuration of a managing system 100 according to one embodiment of the invention. As illustrated in the diagram, the managing system 100 is configured to include a fuel cell vehicle 10 configured in such a way that a fuel tank fuel tank 30 is attachable to and detachable from the fuel cell vehicle 10, and a managing device 20 which is located outside the vehicle and manages the history of use of the fuel tank, and the like. The fuel tank 30 may be used in any one of a use mode where it is attached and detached daily and a use mode where it is attached and detached in a least necessary case such as at the time of failure.

[0037] An on-vehicle terminal unit 11 is mounted in the fuel cell vehicle 10, and the on-vehicle terminal unit 11 and the managing device 20 are so configured as to be communicable with each other over a predetermined communication network N (any one of LAN, Internet, packet communication network, a combination thereof, and including cable or wireless or both). When the managing device 20 is set at a fuel supply stand or the like, it is desirable to construct the communication network N by a wireless packet communication network so that communications are possible without using a cable, for example, at the time of feeding fuel.

[0038] FIG. 2 shows the schematic configuration of a fuel cell system 40 mounted in the fuel cell vehicle 10.

[0039] The fuel cell system 40 is configured to mainly have a fuel gas supply unit 41 including a fuel tank 30, an oxidizing gas supply unit 42, a fuel cell 43 and a controller 44. A fuel gas is, for example, a hydrogen gas, and an oxidizing gas is, for example, air. The controller 44 acquires the required amount of power generation of the fuel cell 43 from the accelerator opening detected by an acceleration sensor 48, and controls the fuel gas supply unit 41 and the oxidizing gas supply unit 42 to acquire the desired amount of power generation, thereby adjusting the flow rate of the fuel gas and flow rate of the oxidizing gas which are supplied to the fuel cell 43. A PCU 45 is a power control unit including an inverter and a DC/DC converter. The PCU 45 converts the DC power generated by the fuel cell 43 into AC power and supplies the AC power to a motor 46 for driving the vehicle, and stores excess power in a secondary cell 47. The secondary cell 47 serves as a regenerated energy storage source at the time of brake energy regeneration and an energy buffer at the time of a load change originated from vehicle acceleration or deceleration.

[0040] A small electronic tag **31** is attached to the fuel tank **30** of the embodiment by a screw, a fitting structure or the like. The electronic tag **31** stores relevant information on the fuel tank **30** in a built-in semiconductor circuit. As will be described later, the on-vehicle terminal unit **11** wirelessly reads the fuel tank relevant information at a predetermined timing through an RF reader and sends the relevant information to the managing device **20**. Such a technique of wirelessly accessing the electronic tag **31** and the fuel tank relevant information can be configured using the conventional data carrier technique.

[0041] FIG. 3A is a block diagram showing the hardware configuration of the on-vehicle terminal unit **11**. As shown in FIG. 3A, the on-vehicle terminal unit **11** can be configured by an exclusive or general-purpose information processing unit having hardware, such as CPU, ROM, RAM, external storage unit, RFID reader, user interface including a display, etc., and a communication interface. It is assumed that the RFID reader has been provided beforehand at the position where it can communicate with the electronic tag **31** when the fuel tank **30** is mounted in the fuel cell vehicle **10**.

[0042] FIG. 3B is a block diagram showing the functional configuration of the on-vehicle terminal unit **11**. As shown in FIG. 3B, the on-vehicle terminal unit **11** includes functional means, such as fuel tank-vehicle set information storage means **12**, communication means **13** and control means **14**. Those functional means are realized as the CPU executes a predetermined program (including a program which defines the managing method of the invention) stored in the ROM, RAM, the external storage unit or the like.

[0043] The set information storage means **12** stores, as vehicle relevant information, at least one of information on the owner of the vehicle (the name of a person or organization, the address, etc.), the vehicle body number, and the number on a number plate. A predetermined host device (not shown) can write the vehicle relevant information into the set information storage means **12** through the communication interface or using the user interface equipped in the on-vehicle terminal unit **11**, on a timing at which the fuel cell vehicle **10** is registered as a new car or the owner of the fuel cell vehicle **10** is changed, etc.

[0044] The set information storage means **12** stores relevant information on the fuel tank **30** in association with the vehicle relevant information. The fuel tank relevant information is structured to include at least one of information on the owner of the fuel tank (the name of a person or organization, the address, etc.), information on production of the fuel tank (production date, serial number, etc.), information on the attribute of fuel to be filled (the types of the contents, etc.), information on the filling work (fuel filling date, and the number of fuel fillings, etc.). As will be described later, the set of the vehicle relevant information and fuel tank relevant information is written in the set information storage means **12** by the control means **14**.

[0045] The communication means **13** is configured to be able to input and output data to and from the managing device **20** over the communication network N. The communication means **13** includes communications modules, e.g., a PPP driver and a TCP/IP driver.

[0046] Based on the program stored in the ROM or the like, the control means **14** controls the general operation of the on-vehicle terminal unit **11**, and executes a fuel tank-vehicle set information acquiring/storing process, a fuel tank-vehicle set information transmitting process, and so forth. FIG. 3

illustrates the individual processes, which are executed by the control means **14**, as functional means. In addition to the processes, the control means **14** executes various processes, such as a process of electrically or mechanically detecting execution of the fuel filling work, and a process of detecting the amount of fuel remaining in the fuel tank or the amount of fuel filled therein, based on a temperature sensor, pressure sensor, flow rate sensor, etc. provided at the fuel tank.

[0047] FIG. 4A is a block diagram showing the hardware configuration of the managing device **20**. As shown in FIG. 4A, the managing device **20** can be configured by an exclusive or general-purpose information processing unit having hardware, such as CPU, ROM, RAM, external storage unit, RFID reader, user interface including a display, etc., and a communication interface. The managing device **20** may be constituted by a single computer or a plurality of computers distributed on the network.

[0048] FIG. 4B is a block diagram showing the functional configuration of the managing device **20**. As shown in FIG. 4B, the managing device **20** includes functional means, such as fuel tank-vehicle set information database **21**, communication means **22** and control means **23**.

[0049] The set information database **21**, like the set information storage means **12**, stores relevant information on the fuel tank **30** in association with the vehicle relevant information. As will be described later, the set of the vehicle relevant information and fuel tank relevant information, transmitted from the on-vehicle terminal unit **11**, is received via the communication means **22** and is written in the relevant set information database **21** by the control means **23**.

[0050] The communication means **22** is configured to be able to input and output data to and from the on-vehicle terminal unit **11** over the communication network N. The communication means **22** includes communications modules, e.g., a PPP driver and a TCP/IP driver.

[0051] Based on the program stored in the ROM or the like, the control means **23** controls the general operation of the managing device **20**, and executes a fuel tank-vehicle set information receiving/registering process, a fuel tank-vehicle set information managing process, and so forth. FIG. 4 illustrates the individual processes, which are executed by the control means **23**, as functional means. In addition to the processes, the control means **23** executes various processes, such as a process of registering the fuel tank to be managed.

[0052] FIG. 5 conceptually illustrates an example of the data structures of the fuel tank-vehicle set information storage means **12** and the fuel tank-vehicle set information database **21**. Such a data structure can be constructed by using the conventional database technique like a relational database.

[0053] The operation of the managing system **100** will be explained based on flowcharts illustrated in FIGS. 6 and 7. The individual steps can be executed with the execution order being changed arbitrarily or in parallel without discrepancy of the process contents.

[0054] (Set Information Acquiring/Storing Process)

[0055] With the fuel tank **30** mounted in the fuel cell vehicle **10**, the control means **14** of the on-vehicle terminal unit **11** controls the RFID reader at a given timing to wirelessly access the electronic tag **31** attached to the fuel tank **30** and read (acquire) fuel tank relevant information stored in the electronic tag **31** (S100).

[0056] The given timing can be, for example, the timing at which the fuel tank **30** is mounted in the fuel cell vehicle **10**, the timing at which the work of filling fuel in the fuel tank **30**

is carried out, the timing at which a user has given an instruction, or a combination of those timings. To determine the timing of mounting the fuel tank **30** and the timing of executing the fuel filling work, the configuration may be designed in such a way as to be able to electrically or mechanically detect the mount state of the fuel tank and the execution or non-execution of the work, using a conventional technology.

[0057] Next, the control means **14** stores the acquired fuel tank relevant information in association with the vehicle relevant information in the set information storage means **12** (stores a set of the vehicle relevant information and the fuel tank relevant information) (**S101**). At this time, the control means **14** may first read the vehicle relevant information on the fuel cell vehicle **10** by referring to the set information storage means **12**, and then store the acquired fuel tank relevant information in an area different from the read area in the set information storage means **12** in association with the read vehicle relevant information. The control means **14** may be configured to store date information, such as the timing of acquisition of fuel tank relevant information and the storage timing to the set information storage means **12**, together with respective items of relevant information.

[0058] Next, the control means **14** determines if the fuel tank relevant information has been changed (**S102**), and terminates the process when it is not changed.

[0059] When the fuel tank relevant information like the fuel filling date has been changed due to execution of the fuel filling work or the like, the control means **14** controls the RFID reader to wirelessly access the electronic tag **31** attached to the fuel tank **30** and update the fuel tank relevant information stored in the electronic tag **31** (**S103**).

[0060] The control means **14** stores the updated fuel tank relevant information in association with the vehicle relevant information in the set information storage means **12** (**S104**), then terminates the process.

[0061] (Set Information Transmitting Process)

[0062] The control means **14** of the on-vehicle terminal unit **11** refers to the set information storage means **12** at a given timing to read set information (i.e., vehicle relevant information and fuel tank relevant information associated therewith) (**S200**).

[0063] The given timing can be, for example, a regular timing (every predetermined time or every predetermined traveling distance), the timing at which the fuel tank relevant information stored in the electronic tag **31** is updated, the timing at which a user has given an instruction, or a combination of those timings. To determine the regular timing, the on-vehicle terminal unit **11** has a function of determining the elapsed time and the traveling distance based on information acquired from an internal or external timer or the control system of the fuel cell vehicle **10**.

[0064] Next, the control means **14** controls the communication means **13** to transmit the read set information to the managing device **20** (**S201**). When date information or the like is stored in the set information storage means **12** together with respective items of information, the control means **14** may be configured to execute the transmitting process for untransmitted set information stored after the previous timing of executing the set information transmitting process, based on the date information or the like.

[0065] (Set Information Receiving/Registering Process)

[0066] The control means **23** of the managing device **20** controls the communication means **22** to receive set information transmitted from the fuel cell vehicle **10** (**S300**). The set

information includes the fuel tank relevant information on the fuel tank **30** mounted in the fuel cell vehicle **10** and the vehicle relevant information on the fuel cell vehicle **10**.

[0067] Next, the control means **23** registers the received set information in the set information database **21** (**S301**).

[0068] (Set Information Managing Process)

[0069] The control means **23** of the managing device **20** executes a process of referring to the set information database **21** to extract set information relating to the fuel tank **30** based on an instruction from the user of the managing device **20**, and processes of displaying use history information of the fuel tank **30** (how the fuel tank has been used in what vehicles, etc.) on a display or the like, showing which fuel tank is mounted in which vehicle, and determining the durability or the like of the fuel tank **30**, and so forth based on the extracted set information.

[0070] Because the on-vehicle terminal unit **11** or the managing device **20** employs the configuration to store and manage set information having fuel tank relevant information and vehicle relevant information associated with each other in the embodiment, the traceability of the fuel tank **30** can be secured and the history of use thereof can be adequately managed and grasped even when the fuel tank **30** is consecutively used over a plurality of vehicles.

[0071] (Others)

[0072] The present invention is not limited to the above-described embodiment, and can be modified and adapted in various forms. While the foregoing description of the embodiment has been given of an example where the fuel cell vehicle is where the fuel tank is located, for example, similar advantages can be acquired when the fuel tank is provided at a location different from the fuel cell vehicle if the fuel tank may be used consecutively at a plurality of set locations.

[0073] Although the embodiment is configured to store set information of vehicle relevant information and fuel tank relevant information in the set information storage means **12** of the on-vehicle terminal unit **11**, the invention is not limited to such a configuration. For example, the set information may be stored in the electronic tag **31** of the fuel tank **30** in place of or in addition to the set information storage means **12**. In case of storing the set information in the electronic tag **31** in place of the set information storage means **12**, the control means **14** refers to predetermined storage means to read (acquire) vehicle relevant information, and stores the read vehicle relevant information in the electronic tag **31** in association with fuel tank relevant information stored in the electronic tag **31** (stores set information). At the time of executing the set information transmitting process, the RFID reader is controlled to read the set information from the electronic tag **31** attached to the fuel tank **30**, and is transmitted to the managing device **20**.

[0074] Although the foregoing description of the embodiment has been given of the configuration that uses the electronic tag **31** as means to store fuel tank relevant information, the configuration may be modified to store fuel tank relevant information in a storage medium other than the electronic tag **31**. For example, an information storage medium which does not include an electric circuit, such as a bar code or a two-dimensional code, can be used instead of the electronic tag **31**. In this case, the fuel cell vehicle **10** has a reader according to the information storage medium, such as a bar code reader, in place of the RFID reader. It is to be noted that when the storage means attached to the fuel tank **30** is not such a rewritable information storage medium, it is necessary to

store update fuel tank relevant information or set information of vehicle relevant information and fuel tank relevant information in the set information storage means 12 of the on-vehicle terminal unit 11 as done in the embodiment.

[0075] While the embodiment uses the set information storage means 12 as storage means to store vehicle relevant information, the invention is not limited to such a configuration. As has been described above, for example, an information storage medium which does not include an electric circuit, such as a bar code or a two-dimensional code, can be used as storage means to store vehicle relevant information.

[0076] The embodiment is configured to store set information in the set information storage means 12 and read the information and execute the transmitting process at the time of transmission. However, the configuration may be modified to read vehicle relevant information from predetermined storage means, prepare set information by associating the read vehicle relevant information with fuel tank relevant information acquired from the electronic tag 31, and execute the transmitting process at the time of transmission.

1. A mobile object with a fuel tank, comprising:
storage means for storing fuel tank relevant information on the fuel tank and mobile object relevant information on the mobile object in association with each other.
2. A mobile object with a fuel tank, comprising:
control means for storing, in first storage means provided at the fuel tank and/or second storage means provided at the mobile object, fuel tank relevant information stored in first storage means, and mobile object relevant information stored in second storage means, in association with each other.
3. The mobile object according to claim 2, wherein the control means acquires the fuel tank relevant information referring to the first storage means, and stores the fuel tank relevant information in association with the mobile object relevant information in the second storage means.
4. The mobile object according to claim 2, wherein the control means acquires the mobile object relevant information referring to the second storage means, and stores the mobile object relevant information in association with the fuel tank relevant information in the first storage means.
5. The mobile object according to claim 2, wherein the control means executes a process of acquiring the fuel tank relevant information at a timing at which the fuel tank is mounted in the mobile object and storing the fuel tank relevant information and the mobile object relevant information in association with each other.
6. The mobile object according to claim 2, wherein the control means executes a process of storing the fuel tank relevant information and the mobile object relevant information in association with each other based on a timing at which a fuel filling work on the fuel tank is executed.
7. The mobile object according to claim 2, wherein further, the control means controls communication means to transmit a set of the fuel tank relevant information and the mobile

object relevant information corresponding thereto, stored in the first storage means or the second storage means, to a managing device located outside the mobile object.

8. The mobile object according to claim 1, wherein the fuel tank relevant information includes at least one of information on an owner of the fuel tank, information on production of the fuel tank, information on an attribute of fuel to be filled, and information on the filling work, and the mobile object relevant information includes at least one of information on an owner of the mobile object, a serial number of the mobile object, and a registration number of the mobile object.

9. The mobile object according to claim 1, wherein the fuel tank is at least one of a fuel gas tank, a compressed-gas tank, and a hydrogen tank.

10. The mobile object according to claim 2, wherein the first storage means of the fuel tank is an electronic tag and the control means accesses the electronic tag via an RFID reader provided at the mobile object.

11. The mobile object according to claim 1, wherein the mobile object is a fuel cell vehicle.

12. A managing device for a fuel tank mounted in a mobile object, comprising:

means for receiving a set of relevant information on the fuel tank mounted in the mobile object and mobile object relevant information on the mobile object, transmitted from the mobile object; and

means for registering the fuel tank relevant information and the mobile object relevant information included in the received set in a database in association with each other.

13. A managing method for a fuel tank mounted in a mobile object, comprising:

a step of storing, in first storage means provided at the fuel tank and/or second storage means provided at the mobile object, fuel tank relevant information stored in the first storage means provided at the fuel, and mobile object relevant information stored in the second storage means, in association with each other; and

a step of transmitting a set of the fuel tank relevant information and the mobile object relevant information corresponding thereto to a managing device located outside the mobile object.

14. The mobile object according to claim 2, wherein the fuel tank relevant information includes at least one of information on an owner of the fuel tank, information on production of the fuel tank, information on an attribute of fuel to be filled, and information on the filling work, and the mobile object relevant information includes at least one of information on an owner of the mobile object, a serial number of the mobile object, and a registration number of the mobile object.

15. The mobile object according to claim 2, wherein the fuel tank is at least one of a fuel gas tank, a compressed-gas tank, and a hydrogen tank.

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