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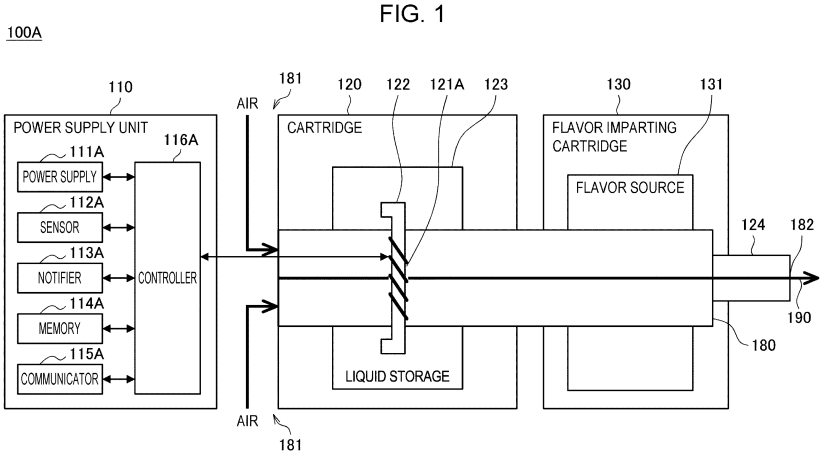
(54) CONTROL DEVICE, CONTROL METHOD, AND PROGRAM

(57) [Problem] To provide a mechanism with which it is possible to collect information of a suction device selectively.

[Solution] A control device comprising a control section that controls a transmission process of transmitting suction information, which is information acquired with regard to suction carried out using a suction device, each time the suction information is acquired. The control section controls a transmission source of the suction information so that the suction information satisfying an exclusion condition set by a user is excluded from the suction information to be transmitted in the transmission process.

FIG. 1



EP 4 039 110 A1

Description

Technical Field

[0001] The present invention relates to a control device, a control method, and a program.

Background Art

[0002] Inhaler devices, such as electronic cigarettes and nebulizers, generating material to be inhaled by users are in widespread use. For example, an inhaler device includes an aerosol source for generating an aerosol and a substrate including a flavor source for imparting a flavor component to the generated aerosol to generate the aerosol to which the flavor component is imparted. When a user inhales the aerosol, generated by the inhaler device, to which the flavor component is imparted, the user can enjoy the flavor.

[0003] In recent years, techniques for collecting information regarding inhaler devices for use in, for example, marketing have been studied. As an example of the techniques for collecting information regarding inhaler devices from the inhaler devices, Patent Literature 1 listed below discloses a technique in which information is transmitted through a wired connection path each time an inhaler device is connected by wire for recharging.

Citation List

Patent Literature

[0004] Patent Literature 1: JP2015-507477A

Summary of Invention

Technical Problem

[0005] With the technique described in Patent Literature 1 listed above, however, any information regarding the inhaler device is collected. Therefore, information that the user does not want to provide may be also collected before the user notices it, and the user may suffer from unexpected inconvenience.

[0006] Accordingly, the present invention has been made in view of the above-described issue, and an object of the present invention is to provide a system for enabling selective collection of information regarding an inhaler device.

Solution to Problem

[0007] In order to solve the above-described issue, according to an aspect of the present invention, there is provided a control device including: a controller that controls a transmission process that is a process of, each time inhalation information that is information acquired in connection with inhalation performed by using an inhaler device is acquired, transmitting the acquired inhalation information, in which the controller controls a transmission source of the inhalation information so as to exclude the inhalation information from a transmission target of the transmission process when the inhalation information satisfies a condition of exclusion set by a user.

[0008] The condition of exclusion may include a first condition of exclusion concerning a situation where the inhalation information is acquired, and the controller may control the transmission source so as to exclude the inhalation information from the transmission target when the inhalation information is acquired in a situation where the first condition of exclusion is satisfied.

[0009] The first condition of exclusion may include a condition that a time when the inhalation information is acquired is within a period set by the user.

[0010] A start time of the period may be a time when an operation for giving an instruction for excluding the inhalation information from the transmission target is received.

[0011] A length of the period may be set by the user.

[0012] The period may be scheduled by the user.

[0013] The first condition of exclusion may include a condition that a position at which the inhalation information is acquired is within a positional area set by the user.

[0014] The inhalation information may include a plurality of items of information, the condition of exclusion may include a second condition of exclusion that specifies an item of information to be excluded from the transmission target, among the plurality of items of information included in the inhalation information, and the controller may control the transmission source so as to exclude, among the plurality of items of information included in the inhalation information that is acquired in a situation where the first condition of exclusion is satisfied, the item of information specified in the second condition of exclusion from the transmission target.

[0015] The inhalation information may include information that is not allowed to be set as information to be excluded from the transmission target in the second condition of exclusion.

[0016] The transmission process may include a first transmission process in which the inhaler device transmits the inhalation information to a terminal device associated with the inhaler device and a second transmission process in which the terminal device transmits the inhalation information to a collection device that collects the inhalation information, and the condition of exclusion may be set for each of the first transmission process and the second transmission process.

[0017] The controller may control the transmission source so as to abandon the inhalation information excluded from the transmission target.

[0018] The controller may control the transmission source so as to store the inhalation information excluded from the transmission target and, in response to the user permitting transmission of the stored inhalation information, transmit the permitted inhalation information.

[0019] The transmission process may include a process in which the inhaler device transmits the inhalation information to a collection device that collects the inhalation information, and the controller may control the transmission source so as to exclude the inhalation information that satisfies the condition of exclusion from the transmission target.

[0020] In order to solve the above-described issue, according to another aspect of the present invention, there is provided a control method including: controlling a transmission process that is a process of, each time inhalation information that is information acquired in connection with inhalation performed by using an inhaler device is acquired, transmitting the acquired inhalation information, in which the controlling of the transmission process includes controlling a transmission source of the inhalation information so as to exclude the inhalation information from a transmission target of the transmission process when the inhalation information satisfies a condition of exclusion set by a user.

[0021] In order to solve the above-described issue, according to another aspect of the present invention, there is provided a program for causing a computer to function as a controller that controls a transmission process that is a process of, each time inhalation information that is information acquired in connection with inhalation performed by using an inhaler device is acquired, transmitting the acquired inhalation information, in which the controller controls a transmission source of the inhalation information so as to exclude the inhalation information from a transmission target of the transmission process when the inhalation information satisfies a condition of exclusion set by a user.

Advantageous Effects of Invention

[0022] According to the present invention described above, a system for enabling selective collection of information regarding an inhaler device is provided.

Brief Description of Drawings

[0023]

[Fig. 1] Fig. 1 is a schematic diagram of an inhaler device according to a first configuration example.

[Fig. 2] Fig. 2 is a schematic diagram of an inhaler device according to a second configuration example.

[Fig. 3] Fig. 3 is a block diagram of an example configuration of a system according to one embodiment of the present invention.

[Fig. 4] Fig. 4 is a diagram for explaining an example setting screen for a condition of exclusion displayed by a terminal device according to the present embodiment.

[Fig. 5] Fig. 5 is a diagram for explaining an example setting screen for a condition of exclusion displayed by the terminal device according to the present embodiment.

[Fig. 6] Fig. 6 is a diagram for explaining an example setting screen for a condition of exclusion displayed by the terminal device according to the present embodiment.

[Fig. 7] Fig. 7 is a flowchart of an example flow of a first transmission process performed by an inhaler device according to the present embodiment.

[Fig. 8] Fig. 8 is a flowchart of an example flow of a second transmission process performed by the terminal device according to the present embodiment.

Description of Embodiments

[0024] Hereinafter, a preferred embodiment of the present invention will be described in detail with reference to the attached drawings. Note that in the specification and drawings, structural elements having substantially the same functional configurations are assigned the same reference sign to thereby omit a duplicated description.

[0025] Further, in the specification and drawings, elements having substantially the same functional configurations may be distinguished from each other by appending different alphabet letters to the same reference sign. For example, a plurality of elements having substantially the same functional configurations may be distinguished from each other as necessary, as, for example, inhaler devices 100A and 100B. Note that when a plurality of elements having substantially the same functional configurations need not be distinguished from each other, only the same reference sign is assigned. For example, when the inhaler devices 100A and 100B need not be distinguished from each other, the inhaler devices 100A and 100B are simply referred to as an inhaler device 100.

1. Configuration example of inhaler device

[0026] An inhaler device generates material to be inhaled by a user. In the example described below, the material generated by the inhaler device is an aerosol. Alternatively, the material generated by the inhaler device may be gas.

(1) First configuration example

[0027] Fig. 1 is a schematic diagram of the inhaler device according to the first configuration example. As illustrated in Fig. 1, an inhaler device 100A according to the present configuration example includes a power supply unit 110, a cartridge 120, and a flavor imparting cartridge 130. The power supply unit 110 includes a power supply 111A, a sensor 112A, a notifier 113A, a memory 114A, a communicator 115A, and a controller 116A. The cartridge 120 includes a heater 121A, a liquid guide 122, and a liquid storage 123. The flavor imparting cartridge 130 includes a flavor source 131 and a mouthpiece 124. In the cartridge 120 and the flavor imparting cartridge

130, an airflow path 180 is defined.

[0028] The power supply 111A stores electric power. The power supply 111A supplies electric power to the structural elements of the inhaler device 100A under the control of the controller 116A. The power supply 111A may be a rechargeable battery such as a lithium ion secondary battery.

[0029] The sensor 112A acquires various items of information regarding the inhaler device 100A. In an example, the sensor 112A may be a pressure sensor such as a microphone condenser, a flow sensor, or a temperature sensor, and acquire a value generated in accordance with the user's inhalation. In another example, the sensor 112A may be an input device that receives information input by the user, such as a button or a switch.

[0030] The notifier 113A provides information to the user. The notifier 113A may be a light-emitting device that emits light, a display device that displays an image, a sound output device that outputs sound, or a vibration device that vibrates.

[0031] The memory 114A stores various items of information for operation of the inhaler device 100A. The memory 114A may be a non-volatile storage medium such as flash memory.

[0032] The communicator 115A is a communication interface capable of communication in conformity with any wired or wireless communication standard. Such a communication standard may be, for example, Wi-Fi (registered trademark) or Bluetooth (registered trademark).

[0033] The controller 116A functions as an arithmetic processing unit and a control circuit, and controls the overall operations of the inhaler device 100A in accordance with various programs. The controller 116A includes an electronic circuit such as a central processing unit (CPU) or a microprocessor, for example.

[0034] The liquid storage 123 stores an aerosol source. The aerosol source is atomized to generate an aerosol. The aerosol source is a liquid such as polyhydric alcohol or water. Examples of the polyhydric alcohol include glycerine and propylene glycol. The aerosol source may include a flavor component that is either derived from tobacco or not derived from tobacco. For the inhaler device 100A that is a medical inhaler such as a nebulizer, the aerosol source may include a medicine.

[0035] The liquid guide 122 guides, from the liquid storage 123, the aerosol source that is the liquid stored in the liquid storage 123, and holds the aerosol source. The liquid guide 122 is, for example, a wick formed by twining fiber material such as glass fiber or porous material such as porous ceramic. In this case, the capillary action of the wick guides the aerosol source stored in the liquid storage 123.

[0036] The heater 121A heats the aerosol source to atomize the aerosol source and generate the aerosol. In the example illustrated in Fig. 1, the heater 121A includes a coil wound around the liquid guide 122. When the heater 121A produces heat, the aerosol source held by the liquid guide 122 is heated and atomized to generate the aerosol. The heater 121A produces heat when receiving electric power from the power supply 111A. In an example, the electric power may be supplied in response to the sensor 112A detecting a start of the user's inhalation and/or an input of predetermined information. Subsequently, the supply of the electric power may be stopped in response to the sensor 112A detecting an end of the user's inhalation and/or an input of predetermined information.

[0037] The flavor source 131 is a structural element for imparting a flavor component to the aerosol. The flavor source 131 may include a flavor component that is either derived from tobacco or not derived from tobacco.

[0038] The airflow path 180 is a flow path of air to be inhaled by the user. The airflow path 180 has a tubular structure having an air inlet hole 181 and an air outlet hole 182 at both ends. The air inlet hole 181 is an inlet of air into the airflow path 180, and the air outlet hole 182 is an outlet of the air from the airflow path 180. The liquid guide 122 is on the airflow path 180 at an upstream position (closer to the air inlet hole 181), and the flavor source 131 is on the airflow path 180 at a downstream position (closer to the air outlet hole 182). Air flowing in through the air inlet hole 181 when the user inhales mixes with the aerosol generated by the heater 121A. Subsequently, as indicated by an arrow 190, the mixture fluid of the aerosol and the air passes through the flavor source 131 and is conveyed to the air outlet hole 182. When the mixture fluid of the aerosol and the air passes through the flavor source 131, the flavor component included in the flavor source 131 is imparted to the aerosol.

[0039] The mouthpiece 124 is to be held in a mouth of the user during inhalation. The mouthpiece 124 has the air outlet hole 182. When the user inhales with the mouthpiece 124 in his/her mouth, the mixture fluid of the aerosol and the air enters the oral cavity of the user.

[0040] The configuration example of the inhaler device 100A has been described above. The inhaler device 100A is not limited to the above configuration, and may be configured in various ways as exemplified below.

[0041] In an example, the inhaler device 100A does not have to include the flavor imparting cartridge 130. In this case, the cartridge 120 includes the mouthpiece 124.

[0042] In another example, the inhaler device 100A may include various types of aerosol sources. Still another type of aerosol may be generated by mixing a plurality of types of aerosols generated from the plurality of types of aerosol sources in the airflow path 180 and causing a chemical reaction.

[0043] In addition, means for atomizing the aerosol source is not limited to heating by the heater 121A. For example, the means for atomizing the aerosol source may be vibration atomization or induction heating. The means for atomizing the aerosol source may be means for atomizing a liquid by using a piezoelectric element substrate having a pair of comb-shaped electrodes and generating a surface acoustic wave (SAW).

(2) Second configuration example

[0044] Fig. 2 is a schematic diagram of the inhaler device according to the second configuration example. As illustrated in Fig. 2, an inhaler device 100B according to the present configuration example includes a power supply 111B, a sensor 112B, a notifier 113B, a memory 114B, a communicator 115B, a controller 116B, a heater 121B, a holder 140, and a heat insulator 144.

[0045] The power supply 111B, the sensor 112B, the notifier 113B, the memory 114B, the communicator 115B, and the controller 116B are substantially the same as the respective corresponding structural elements included in the inhaler device 100A according to the first configuration example.

[0046] The holder 140 has an internal space 141, and holds a stick substrate 150 in a manner partially accommodated in the internal space 141. The holder 140 has an opening 142 that allows the internal space 141 to communicate with outside. The holder 140 holds the stick substrate 150 that is inserted into the internal space 141 through the opening 142. For example, the holder 140 may be a tubular body having the opening 142 and a bottom 143 on its ends, and may define the pillar-shaped internal space 141. The holder 140 can also define a flow path of air to be supplied to the stick substrate 150. For example, the bottom 143 has an air inlet hole that is an inlet of air into the flow path. The opening 142 serves as an air outlet hole that is an outlet of the air from the flow path.

[0047] The stick substrate 150 includes a substrate 151 and an inhalation port 152. The substrate 151 includes an aerosol source. The aerosol source according to the present configuration example is not limited to a liquid. The aerosol source may be a solid. The stick substrate 150 held by the holder 140 includes the substrate 151 at least partially accommodated in the internal space 141 and the inhalation port 152 at least partially protruding from the opening 142. When the user inhales with the inhalation port 152 protruding from the opening 142 in his/her mouth, air flows into the internal space 141 through the air inlet hole (not illustrated), and the air and an aerosol generated from the substrate 151 reach inside the mouth of the user.

[0048] The heater 121B has a configuration the same as that of the heater 121A according to the first configuration example. However, in the example illustrated in Fig. 2, the heater 121B has a film-like shape and surrounds the outer circumference of the holder 140. Subsequently, heat produced from the heater 121B heats the substrate 151 of the stick substrate 150 from the outer circumference, generating the aerosol.

[0049] The heat insulator 144 prevents heat from transferring from the heater 121B to the other structural elements. For example, the heat insulator 144 may be a vacuum heat insulator or an aerogel heat insulator.

[0050] The configuration example of the inhaler device 100B has been described above. The inhaler device 100B is not limited to the above configuration, and may be configured in various ways as exemplified below.

[0051] In an example, the heater 121B may have a blade-like shape, and may be disposed so that the heater 121B protrudes from the bottom 143 of the holder 140 toward the internal space 141. In this case, the heater 121B having the blade-like shape is inserted into the substrate 151 of the stick substrate 150 and heats the substrate 151 of the stick substrate 150 from its inside. In another example, the heater 121B may be disposed so that the heater 121B covers the bottom 143 of the holder 140. In still another example, the heater 121B may be implemented as a combination of two or more selected from a first heater that covers the outer circumference of the holder 140, a second heater having the blade-like shape, and a third heater that covers the bottom 143 of the holder 140.

[0052] In another example, the holder 140 may include an opening/closing mechanism that at least partially opens and closes an outer shell defining the internal space 141. Examples of the opening/closing mechanism include a hinge. In addition, the holder 140 may sandwich the stick substrate 150 inserted into the internal space 141 by opening and closing the outer shell. In this case, the heater 121B may be at the sandwiching position of the holder 140 and may produce heat while pressing the stick substrate 150.

[0053] In addition, means for atomizing the aerosol source is not limited to heating by the heater 121B. For example, the means for atomizing the aerosol source may be induction heating.

[0054] In addition, the inhaler device 100B may also include the heater 121A, the liquid guide 122, the liquid storage 123, and the airflow path 180 according to the first configuration example. The air outlet hole 182 of the airflow path 180 may also serve as an air inlet hole to the internal space 141. In this case, a mixture fluid of air and an aerosol generated by the heater 121A flows into the internal space 141, mixes further with an aerosol generated by the heater 121B, and then reaches the oral cavity of the user.

2. One embodiment

2.1. Configuration example

[0055] Fig. 3 is a block diagram of an example configuration of a system 1 according to one embodiment of the present invention. As illustrated in Fig. 3, the system 1 includes an inhaler device 100, a terminal device 200, and a server 300.

[0056] The inhaler device 100 and the terminal device 200 are capable of wirelessly communicating with each other. In contrast, the terminal device 200 and the server 300 are capable of communicating with each other over a network 90. The network 90 is any wired/wireless communication network and is, for example, the Internet.

[0057] The inhaler device 100 and the terminal device

200 are associated with each other. For example, the inhaler device 100 and the terminal device 200 are associated with each other in that the devices are used by the same user. For example, the inhaler device 100 and the terminal device 200 are associated with each other in that the devices are connected with each other in advance by, for example, pairing for wireless communication.

(1) Inhaler device

[0058] The inhaler device 100 generates material to be inhaled by a user. The user's action of using the inhaler device 100 to inhale material generated by the inhaler device 100 is hereinafter also simply referred to as inhalation (puff).

[0059] In the present embodiment, the inhaler device 100 may have any of the first configuration example or the second configuration example described above. That is, the inhaler device 100 according to the present embodiment has a configuration the same as that of the inhaler device 100A or the inhaler device 100B or a modification of these configuration examples.

[0060] A description is given below of matters, of the configuration of the inhaler device 100 according to the present embodiment, to be supplemented or highlighted with respect to the configurations of the inhaler device 100A and the inhaler device 100B described in the above configuration examples.

[0061] A controller 116 according to the present embodiment controls a communicator 115 to transmit to the terminal device 200 various items of information for operations of the terminal device 200.

(2) Terminal device

[0062] The terminal device 200 is an information processing device that is operated by a user. The terminal device 200 functions as a device that provides an interface with the user (hereinafter also referred to as a UI device). For example, the terminal device 200 may be a smartphone, a tablet terminal, or a wearable device.

[0063] As illustrated in Fig. 3, the terminal device 200 includes a sensor 210, a notifier 220, a communicator 230, a memory 240, and a controller 250.

[0064] The sensor 210 acquires various items of information regarding the terminal device 200. The sensor 210 outputs the acquired information to the controller 250. The sensor 210 includes an input unit that receives information input by the user. The input unit includes, for example, at least any of a button, a keyboard, a touch panel, or a microphone. The sensor 210 includes a positional information acquisition unit that acquires positional information indicating the position of the terminal device 200. The positional information acquisition unit receives, for example, a Global Navigation Satellite System (GNSS) signal from a GNSS satellite (for example, a Global Positioning System (GPS) signal from a GPS satellite) to acquire positional information including the latitude and longitude of the device.

[0065] The notifier 220 provides information to the user. The notifier 220 includes at least any of a display device that displays information, a light-emitting device that emits light, a vibration device that vibrates, or a sound output device that outputs sound. The display device is, for example, a display. The light-emitting device is, for example, an LED. The vibration device is, for example, an eccentric motor. The sound output device is, for example, a speaker. The notifier 220 outputs information input from the controller 250 to thereby provide the information to the user. For example, the notifier 220 displays information to be provided to the user, emits light in a light-emission pattern corresponding to information to be provided to the user, vibrates in a vibration pattern corresponding to information to be provided to the user, or outputs information to be provided to the user by sound.

[0066] The communicator 230 is a communication interface for transmitting and receiving information between the terminal device 200 and another device. The communicator 230 performs communication in conformity with any wired or wireless communication standard. Such a communication standard may be, for example, a wireless local area network (LAN), a wired LAN, Wi-Fi (registered trademark), or Bluetooth (registered trademark). Typically, the communicator 230 wirelessly transmits and receives information to and from the inhaler device 100.

[0067] The memory 240 stores various items of information for operations of the terminal device 200. The memory 240 may be a nonvolatile storage medium such as flash memory.

[0068] The controller 250 functions as an arithmetic processing unit and a control device and controls the overall operations of the terminal device 200 in accordance with various programs. The controller 250 includes, for example, an electronic circuit such as a central processing unit (CPU) or a microprocessor. In addition, the controller 250 may include a read-only memory (ROM) that stores, for example, a program and arithmetic parameters to be used and a random access memory (RAM) that temporarily stores, for example, parameters that change as appropriate. The terminal device 200 performs various processes under the control of the controller 250. Examples of the processes controlled by the controller 250 include processing of information acquired by the sensor 210, provision of information by the notifier 220, transmission and reception of information by the communicator 230, and storing and reading of information in and from the memory 240. Other processes that are performed by the terminal device 200, such as input of information to the structural elements and processes based on information output from the structural elements, are also controlled by the controller 250. Note that the functions of the controller 250 may be implemented as an application. The application may be pre-installed or downloaded. The functions of the controller 250 may be

implemented as Progressive Web Apps (PWA).

(3) Server

[0069] The server 300 is a device that collects inhalation information described below. The server 300 has a database for accumulating collected inhalation information. The server 300 is operated by, for example, a company that collects inhalation information and uses the collected inhalation information in, for example, marketing. The server 300 is an example of a collection device according to the present invention.

2.2. Technical features

(1) Collection of inhalation information

[0070] The server 300 collects inhalation information. The inhalation information is information acquired in connection with inhalation performed by using the inhaler device 100. The inhalation information is acquired by at least any of the inhaler device 100 or the terminal device 200. The inhalation information can be regarded as a use history of the inhaler device 100.

[0071] The inhalation information is acquired each time inhalation by a user is performed. However, a user may perform inhalation a plurality of times on a single occasion. For example, it is often the case that when one stick substrate 150 is heated, inhalation is performed a plurality of times on a single occasion until the one stick substrate 150 is consumed. The inhalation information may be information acquired in connection with inhalation performed a plurality of times on a single occasion. As a matter of course, the inhalation information may be information acquired in connection with one-time inhalation. In addition, the inhalation information may be information acquired in connection with inhalation performed within a predetermined time, such as per hour or per day.

[0072] The inhalation information may include a plurality of items of information. Examples of items of information that may be included in the inhalation information will be described below.

[0073] The inhalation information may include the number of puffs. The number of puffs is the number of times the user performs inhalation by using the inhaler device 100. The number of puffs is acquired by, for example, a sensor 112 of the inhaler device 100 as the number of times the sensor 112 detects a negative pressure generated in accordance with the user's inhalation.

[0074] The inhalation information may include an in-cartridge remaining amount. The in-cartridge remaining amount is the remaining amount of the aerosol source stored in the liquid storage 123 of the inhaler device 100A. The in-cartridge remaining amount is acquired by, for example, the sensor 112 of the inhaler device 100.

[0075] The inhalation information may include a remaining battery power. The remaining battery power is the remaining amount of electric power stored in a power supply 111 of the inhaler device 100. The remaining battery power is acquired by, for example, the sensor 112 of the inhaler device 100.

[0076] The inhalation information may include positional information. The positional information is information indicating a position at which the user performs inhalation by using the inhaler device 100. The positional information is acquired by the sensor 210 of the terminal device 200.

[0077] The inhalation information may include a device use time. The device use time is the date and time when the user performs inhalation by using the inhaler device 100. The device use time is acquired by, for example, the sensor 112 of the inhaler device 100.

[0078] In addition, the inhalation information may include various items of information including identification information of the user, identification information of the inhaler device 100 (that is, the power supply unit 110), identification information of the cartridge 120, identification information of the flavor imparting cartridge 130, and identification information of the stick substrate 150.

(2) Transmission and suspension of transmission of inhalation information

[0079] The inhaler device 100 and the terminal device 200 according to the present embodiment perform a transmission process, which is a process of, each time inhalation information is acquired, transmitting the acquired inhalation information.

[0080] The transmission process concerning inhalation information includes a first transmission process in which the inhaler device 100 transmits inhalation information to the terminal device 200. In the first transmission process, the transmission source of inhalation information is the inhaler device 100. The inhaler device 100 transmits, each time inhalation information is acquired, the acquired inhalation information to the terminal device 200.

[0081] The transmission process concerning inhalation information includes a second transmission process in which the terminal device 200 transmits inhalation information to the server 300. In the second transmission process, the transmission source of inhalation information is the terminal device 200. The terminal device 200 transmits, each time inhalation information is acquired, the acquired inhalation information to the server 300. Acquisition of inhalation information by the terminal device 200 may include at least any of reception of inhalation information from the inhaler device 100 or acquisition of inhalation information by the sensor 210. That is, each time the terminal device 200 receives inhalation information from the inhaler device 100, the terminal device 200 may transmit the received inhalation information to the server 300. In addition, each time the terminal device 200 acquires inhalation information acquired by the sensor 210, the terminal device 200 may transmit the acquired inhalation information to the server 300. When inhalation

information is acquired by both the inhaler device 100 and the terminal device 200, the terminal device 200 may transmit, each time information is received from the inhaler device 100 and information is acquired by the sensor 210, the inhalation information to the server 300.

[0082] The transmission process concerning inhalation information is performed under the control of a control device. The control device controls the inhaler device 100 and the terminal device 200, each of which is the transmission source of inhalation information, so as to perform a desired process. The present embodiment assumes that the terminal device 200 functions as the control device. In this case, the inhaler device 100 performs the first transmission process under the control of the terminal device 200. In contrast, the terminal device 200 performs the second transmission process under the control of the terminal device 200 itself.

[0083] For the transmission process concerning inhalation information, a condition of exclusion may be set by the user. The condition of exclusion is a condition for excluding inhalation information from a transmission target. The transmission source of inhalation information excludes inhalation information that satisfies the condition of exclusion from a transmission target of the transmission process. That is, the transmission source of inhalation information does not transmit inhalation information that satisfies the condition of exclusion. In contrast, the transmission source of inhalation information includes inhalation information that does not satisfy the condition of exclusion in the transmission target of the transmission process. That is, the transmission source of inhalation information transmits inhalation information that does not satisfy the condition of exclusion. With such a configuration, it is possible to prevent inhalation information that the user does not want to be collected, from being collected. Examples of the condition of exclusion will be described in detail below.

- First condition of exclusion

[0084] The condition of exclusion may include a first condition of exclusion concerning the situation where inhalation information is acquired. The transmission source of inhalation information excludes inhalation information that is acquired in a situation where the first condition of exclusion is satisfied, from the transmission target. With such a configuration, it is possible to prevent inhalation information that is acquired in a situation where the user does not want the inhalation information to be collected, from being collected.

[0085] The first condition of exclusion may include a condition that the time when inhalation information is acquired is within a period set by the user. This period is hereinafter also referred to as a period of exclusion. The transmission source of inhalation information excludes inhalation information that is acquired after the start time of the period of exclusion from the transmission target, and includes inhalation information that is acquired after the end time of the period of exclusion in the transmission target. For example, a period in which the user may suffer from inconvenience if the fact of inhalation is known to others during the period may be set as the period of exclusion. With such a configuration, it is possible to prevent the user from possibly suffering from inconvenience caused by collection of inhalation information. Note that the period of exclusion need not be a period in which the user may suffer from inconvenience and may be set as desired by the user. With such a configuration, it is possible to automatically resume transmission of inhalation information after the period of exclusion.

[0086] The start time of the period of exclusion may be the time when an operation for giving an instruction for excluding inhalation information from the transmission target is received. This operation is, for example, input to the terminal device 200 by the user and acquired by the sensor 210. With such a configuration, the user can make the period of exclusion immediately start. Therefore, for example, at the timing when the user is about to start inhalation, inhalation information regarding the inhalation can be excluded from the transmission target.

[0087] The length of the period of exclusion may be set by the user. In an example, the terminal device 200 may receive an operation for specifying the length of the period of exclusion. In another example, the terminal device 200 may receive an operation for specifying the end time of the period of exclusion. In this case, the time from the start time of the period of exclusion to the specified end time is set as the length of the period of exclusion. With such a configuration, it is possible to set the length of the period of exclusion to a length desired by the user.

[0088] The period of exclusion may be scheduled by the user. For example, the terminal device 200 may receive an operation for setting in advance the start time of the period of exclusion and the length of the period of exclusion. With such a configuration, when a period, such as a working time, that periodically starts is set as the period of exclusion, effort made for an operation for setting the period of exclusion can be reduced.

[0089] The first condition of exclusion may include a condition that a position at which inhalation information is acquired is within a positional area set by the user. Such a positional area is hereinafter also referred to as a positional area of exclusion. The transmission source of inhalation information excludes inhalation information that is acquired at a position within the positional area of exclusion from the transmission target, and includes inhalation information that is acquired at a position outside the positional area of exclusion in the transmission target. For example, a positional area in which the user may suffer from inconvenience if the fact of inhalation in the positional area is known to others may be set as the positional area of exclusion. With such a configuration, it is possible to prevent the user from possibly suffering from inconvenience caused by collection of inhalation information. Note that the positional area of exclusion need not be a positional area in which the user may suffer from

inconvenience and may be set as desired by the user. With such a configuration, it is possible to automatically resume transmission of inhalation information when the user moves out of the positional area of exclusion.

- Second condition of exclusion

[0090] The condition of exclusion may include a second condition of exclusion that specifies, among a plurality of items of information included in inhalation information, one or some items of information to be excluded from the transmission target. The transmission source of inhalation information excludes, among a plurality of items of information included in inhalation information that is acquired in a situation where the first condition of exclusion is satisfied, one or some items of information specified in the second condition of exclusion from the transmission target. In contrast, the transmission source of inhalation information includes, among a plurality of items of information included in inhalation information that is acquired in a situation where the first condition of exclusion is satisfied, information not specified in the second condition of exclusion in the transmission target. With such a configuration, it is possible to exclude, among a plurality of items of information included in inhalation information, only one or some items of information that the user does not want to be collected, from the transmission target.

[0091] Inhalation information may include information that is not allowed to be set as information to be excluded from the transmission target in the second condition of exclusion. That is, one or some items of information among a plurality of items of information included in inhalation information may be included in the transmission target at all times. Examples of such one or some items of information include information for detecting an abnormality in the inhaler device 100, such as the temperature of a heater 121. With such a configuration, it is possible to collect information useful for the public benefit, such as safety of the user, at all times.

(3) First transmission process and second transmission process

[0092] The condition of exclusion is set for each of the first transmission process and the second transmission process. The condition of exclusion set for the first transmission process and the condition of exclusion set for the second transmission process may be the same or may be different from each other. For example, at least one or some items of information included in inhalation information transmitted from the inhaler device 100 to the terminal device 200 may be excluded from the transmission target to be transmitted to the server 300, on the basis of the second condition of exclusion set for the second transmission process. Examples of such one or some items of information include information that is displayed by the terminal device 200 for the user to look back their inhalation history and that the user does not want to be collected by the server 300. With such a configuration, it is possible to realize a flexible transmission process as desired by the user.

(4) Abandoning/storage

[0093] The transmission source of inhalation information may abandon inhalation information that is excluded from the transmission target. In an example, inhalation information excluded from the transmission target in the first transmission process may be abandoned by the inhaler device 100. In another example, inhalation information excluded from the transmission target in the second transmission process may be abandoned by the terminal device 200. With such a configuration, it is possible to protect the user's privacy with more certainty.

[0094] The transmission source of inhalation information may store inhalation information that is excluded from the transmission target. In this case, the transmission source of the inhalation information may, in response to the user permitting transmission of the stored inhalation information, transmit the permitted inhalation information. In an example, the inhaler device 100 stores inhalation information excluded from the transmission target in the first transmission process and, in response to transmission permission being obtained later, transmits the inhalation information for which transmission permission is obtained, to the terminal device 200. In another example, the terminal device 200 stores inhalation information excluded from the transmission target in the second transmission process and, in response to transmission permission being obtained later, transmits the inhalation information for which transmission permission is obtained, to the server 300. With such a configuration, for example, the user can tentatively exclude inhalation information from the transmission target, and thereafter, check the content of the non-transmitted inhalation information without haste and allow information that may be transmitted to be selectively transmitted.

(5) UI

[0095] Examples of a UI (user interface) for receiving settings of the condition of exclusion will be described below with reference to Fig. 4 to Fig. 6.

[0096] Fig. 4 is a diagram for explaining an example setting screen for a condition of exclusion displayed by the terminal device 200 according to the present embodiment. A setting screen 10 is a UI for setting the first condition of exclusion. The setting screen 10 includes an upper screen part 11 and a lower screen part 14.

[0097] The upper screen part 11 is a UI for setting the condition of exclusion for the first transmission process. In response to selection of an ON button 12, transmission of inhalation information from the inhaler device 100 to the terminal device 200 is permitted. That is, the condition of exclusion is not set for the first transmission process,

and each time inhalation information is acquired, the inhalation information is transmitted to the terminal device 200. In contrast, in response to selection of an OFF button 13, transmission of inhalation information from the inhaler device 100 to the terminal device 200 is suspended. That is, the period of exclusion starts at the timing when the OFF button 13 is selected.

[0098] The lower screen part 14 is a UI for setting the condition of exclusion for the second transmission process. In response to selection of an ON button 15, transmission of inhalation information from the terminal device 200 to the server 300 is permitted. That is, the condition of exclusion is not set for the second transmission process, and each time inhalation information is acquired, the inhalation information is transmitted to the server 300. In contrast, in response to selection of an OFF button 16, transmission of inhalation information from the terminal device 200 to the server 300 is suspended. That is, the period of exclusion starts at the timing when the OFF button 16 is selected.

[0099] Fig. 5 is a diagram for explaining an example setting screen for a condition of exclusion displayed by the terminal device 200 according to the present embodiment. A setting screen 20 is a UI for setting the period of exclusion in the first condition of exclusion. When the user operates a scroll wheel UI 21 on the setting screen 20, the user can set the time displayed in a center part 22 as the length of the period of exclusion. In response to selection of an OK button 23, setting of the length of the period of exclusion is completed. Note that the setting screen 20 may be displayed in response to selection of the OFF button 13 or the OFF button 16 on the setting screen 10.

[0100] Fig. 6 is a diagram for explaining an example setting screen for a condition of exclusion displayed by the terminal device 200 according to the present embodiment. A setting screen 30 is a UI for setting the second condition of exclusion. The setting screen 30 includes a list of a plurality of items of information included in inhalation information. When an ON button or an OFF button is selected for each item of information, setting can be performed so as to include the item of information in the transmission target or exclude the item of information from the transmission target. In the example illustrated in Fig. 6, the ON button is selected for the number of puffs, the in-cartridge remaining amount, the remaining battery power, and the device use time, and therefore, these items of information are included in the transmission target. In contrast, the OFF button is selected for the positional information, and therefore, the positional information is excluded from the transmission target. In response to selection of an OK button 31, setting of the second condition of exclusion is completed.

[0101] Note that the setting screen 30 may be displayed in response to selection of the OFF button 13 or the OFF button 16 on the setting screen 10. In this case, from the timing when setting of information to be excluded from the transmission target is completed on the setting screen 30 after selection of the OFF button 13 or the OFF button 16 on the setting screen 10, transmission of information that is set so as to be excluded from the transmission target is suspended, and the period of exclusion starts.

[0102] In response to selection of the OK button 31 on the setting screen 30, the setting screen 20 may be displayed. In this case, information that is set so as to be excluded from the transmission target on the setting screen 30 is not transmitted any more during the period of exclusion set on the setting screen 20.

(6) Flows of processes

[0103] Example flows of transmission processes for inhalation information will be described below with reference to Fig. 7 and Fig. 8.

- First transmission process

[0104] Fig. 7 is a flowchart of an example flow of the first transmission process performed by the inhaler device 100 according to the present embodiment.

[0105] As illustrated in Fig. 7, the inhaler device 100 first acquires inhalation information (step S102). Next, the inhaler device 100 determines whether the first condition of exclusion is set (step S104). If it is determined that the first condition of exclusion is not set (NO in step S104), the inhaler device 100 transmits the acquired inhalation information to the terminal device 200 (step S108). Subsequently, the process returns to step S102 again. On the other hand, if it is determined that the first condition of exclusion is set (YES in step S104), the process proceeds to step S 106.

[0106] In step S106, the inhaler device 100 determines whether the inhalation information acquired in step S102 is acquired in a situation where the first condition of exclusion is satisfied (step S106). For example, the inhaler device 100 determines whether the inhalation information is acquired in the period of exclusion. If it is determined that the inhalation information is acquired in a situation where the first condition of exclusion is not satisfied (NO in step S106), the inhaler device 100 transmits the inhalation information acquired in step S102 to the inhaler device 100 (step S108). Subsequently, the process returns to step S102 again. On the other hand, if it is determined that the inhalation information is acquired in a situation where the first condition of exclusion is satisfied (YES in step S106), the process proceeds to step S110.

[0107] In step S110, the inhaler device 100 determines whether the second condition of exclusion is set (step S110). If it is determined that the second condition of exclusion is not set (NO in step S110), the inhaler device 100 excludes the inhalation information acquired in step S102 from the transmission target. That is, the inhaler device 100 does not transmit the inhalation information acquired in step S102 to the terminal device 200 (step

S112). Subsequently, the process returns to step S102 again. On the other hand, if it is determined that the second condition of exclusion is set (YES in step S110), the inhaler device 100 excludes one or some items of information included in the inhalation information acquired in step S102 and specified in the second condition of exclusion from the transmission target and transmits the other items of information to the terminal device 200 (step S114). Subsequently, the process returns to step S102 again.

- Second transmission process

[0108] Fig. 8 is a flowchart of an example flow of the second transmission process performed by the terminal device 200 according to the present embodiment.

[0109] As illustrated in Fig. 8, the terminal device 200 first determines whether inhalation information is received from the inhaler device 100 (step S201). If it is determined that inhalation information is not received (NO in step S201), the process returns to step S201 again. On the other hand, if it is determined that inhalation information is received (YES in step S201), the process proceeds to step S202.

[0110] In step S202, the terminal device 200 acquires inhalation information (step S202). The inhalation information acquired by the terminal device 200 is, for example, inhalation information not included in the inhalation information received from the inhaler device 100 and may include, for example, positional information and the device use time. Next, the terminal device 200 determines whether the first condition of exclusion is set (step S204). If it is determined that the first condition of exclusion is not set (NO in step S204), the terminal device 200 transmits the inhalation information received in step S201 and the inhalation information acquired in step S202 to the server 300 (step S208). Subsequently, the process returns to step S201 again. On the other hand, if it is determined that the first condition of exclusion is set (YES in step S204), the process proceeds to step S206.

[0111] In step S206, the terminal device 200 determines whether the inhalation information received in step S201 and the inhalation information acquired in step S202 are acquired in a situation where the first condition of exclusion is satisfied (step S206). For example, when positional information is acquired in step S202, the terminal device 200 determines whether the acquired positional information corresponds to a position that is within the positional area of exclusion. If it is determined that the inhalation information is acquired in a situation where the first condition of exclusion is not satisfied (NO in step S206), the terminal device 200 transmits the inhalation information received in step S201 and the inhalation information acquired in step S202 to the server 300 (step S208). Subsequently, the process returns to step S201 again. On the other hand, if it is determined that the inhalation information is acquired in a situation where the first condition of exclusion is satisfied (YES in step S206), the process proceeds to step S210.

[0112] In step S210, the terminal device 200 determines whether the second condition of exclusion is set (step S210). If it is determined that the second condition of exclusion is not set (NO in step S210), the terminal device 200 excludes the inhalation information received in step S201 and the inhalation information acquired in step S202 from the transmission target. That is, the terminal device 200 does not transmit the inhalation information received in step S201 or the inhalation information acquired in step S202 to the server 300. Subsequently, the process returns to step S201 again. On the other hand, if it is determined that the second condition of exclusion is set (YES in step S210), the terminal device 200 excludes one or some items of information included in the inhalation information received in step S201 and specified in the second condition of exclusion and one or some items of information included in the inhalation information acquired in step S202 and specified in the second condition of exclusion from the transmission target and transmits the other items of information to the server 300 (step S212). Subsequently, the process returns to step S201 again.

3. Supplementary description

[0113] Although a preferred embodiment of the present invention has been described in detail above with reference to the attached drawings, the present invention is not limited to the above-described example. It is obvious that one of ordinary skill in the art of the present invention can conceive of various changes or corrections without departing from the technical spirit stated in the claims, and it is understood that such changes and corrections are also within the technical scope of the present invention as a matter of course.

[0114] For example, although a description of an example where the inhaler device 100 and the server 300 communicate with each other via the terminal device 200 has been given in the above-described embodiment, the present invention is not limited to this example. For example, the inhaler device 100 may be connected to the network 90 and the inhaler device 100 and the server 300 may communicate with each other without involvement by the terminal device 200. In this case, the transmission process concerning inhalation information includes a process in which the inhaler device 100 transmits inhalation information to the server 300. The inhaler device 100 excludes inhalation information that satisfies the condition of exclusion from the transmission target to be transmitted from the inhaler device 100 to the server 300. With such a configuration, even in a case where the inhaler device 100 directly communicates with the server 300, it is possible to prevent inhalation information that the user does not want to be collected, from being collected.

[0115] For example, although a description of an example where the terminal device 200 functions as the

control device has been given in the above-described embodiment, the present invention is not limited to this example. For example, any of the inhaler device 100 or the server 300 may function as the control device. A device that is not the inhaler device 100, the terminal device 200, or the server 300 may function as the control device. In addition, for example, the inhaler device 100 may function as a control device that controls the first transmission process, and the terminal device 200 may function as a control device that controls the second transmission process. That is, the functions of the control device may be shared among a plurality of devices.

[0116] For example, although a description of an example where the terminal device 200 functions as the UI device has been given in the above-described embodiment, the present invention is not limited to this example. For example, the inhaler device 100 may function as the UI device.

[0117] For example, a description of an example of the second condition of exclusion has been given in the above-described embodiment, where each time inhalation information is acquired, the inhalation information is transmitted and where only one or some items of information in inhalation information are transmitted when the second condition of exclusion is set; however, the present invention is not limited to this example. Even when the second condition of exclusion is not set, one or some items of information in inhalation information may be transmitted. When the second condition of exclusion is set, another item or other items of information in the inhalation information may be transmitted.

[0118] Note that a series of processes performed by the devices described herein may be implemented as any of software, hardware, or a combination of software and hardware. A program that is the software is stored in advance in, for example, a recording medium (non-transitory medium) that is included in each device or that is externally provided. Each program is, for example, loaded to a RAM upon execution by a computer and executed by a processor such as a CPU. Examples of the recording medium include a magnetic disc, an optical disc, a magneto-optical disc, and flash memory. In addition, the computer program may be distributed via, for example, a network without using a recording medium.

[0119] The processes described herein with reference to the flowcharts and sequence charts need not be performed in the illustrated order. Some process steps may be performed in parallel, an additional process step may be employed, and some process steps may be excluded.

Reference Signs List

[0120]

1	system
90	network
100	inhaler device
110	power supply unit
111	power supply
112	sensor
113	notifier
114	memory
115	communicator
116	controller
120	cartridge
121	heater
122	liquid guide
123	liquid storage
124	mouthpiece
130	flavor imparting cartridge
131	flavor source
140	holder
141	internal space
142	opening
143	bottom
144	heat insulator
150	stick substrate
151	substrate
152	inhalation port
180	airflow path
181	air inlet hole
182	air outlet hole
200	terminal device
210	sensor
220	notifier
230	communicator
240	memory
250	controller
300	server

Claims

1. A control device comprising:

a controller that controls a transmission process that is a process of, each time inhalation information that is information acquired in connection with inhalation performed by using an inhaler device is acquired, transmitting the acquired inhalation information, wherein
the controller controls a transmission source of the inhalation information so as to exclude the inhalation information from a transmission target of the transmission process when the inhalation information satisfies a condition of exclusion set by a user.

2. The control device according to claim 1, wherein

the condition of exclusion includes a first condition of exclusion concerning a situation where the inhalation information is acquired, and
the controller controls the transmission source so as to exclude the inhalation information from the transmission target when the inhalation in-

formation is acquired in a situation where the first condition of exclusion is satisfied.

3. The control device according to claim 2, wherein the first condition of exclusion includes a condition that a time when the inhalation information is acquired is within a period set by the user.

4. The control device according to claim 3, wherein a start time of the period is a time when an operation for giving an instruction for excluding the inhalation information from the transmission target is received.

5. The control device according to claim 4, wherein a length of the period is set by the user.

6. The control device according to claim 3, wherein the period is scheduled by the user.

7. The control device according to any one of claims 2 to 6, wherein the first condition of exclusion includes a condition that a position at which the inhalation information is acquired is within a positional area set by the user.

8. The control device according to any one of claims 2 to 7, wherein

the inhalation information includes a plurality of items of information,
the condition of exclusion includes a second condition of exclusion that specifies an item of information to be excluded from the transmission target, among the plurality of items of information included in the inhalation information, and
the controller controls the transmission source so as to exclude, among the plurality of items of information included in the inhalation information that is acquired in a situation where the first condition of exclusion is satisfied, the item of information specified in the second condition of exclusion from the transmission target.

9. The control device according to claim 8, wherein the inhalation information includes information that is not allowed to be set as information to be excluded from the transmission target in the second condition of exclusion.

10. The control device according to claim 9, wherein

the transmission process includes a first transmission process in which the inhaler device transmits the inhalation information to a terminal device associated with the inhaler device and a second transmission process in which the terminal device transmits the inhalation information to a collection device that collects the inhalation information, and
the condition of exclusion is set for each of the first transmission process and the second transmission process.

11. The control device according to any one of claims 1 to 10, wherein the controller controls the transmission source so as to abandon the inhalation information excluded from the transmission target.

12. The control device according to any one of claims 1 to 10, wherein the controller controls the transmission source so as to store the inhalation information excluded from the transmission target and, in response to the user permitting transmission of the stored inhalation information, transmit the permitted inhalation information.

13. The control device according to any one of claims 1 to 12, wherein

the transmission process includes a process in which the inhaler device transmits the inhalation information to a collection device that collects the inhalation information, and
the controller controls the transmission source so as to exclude the inhalation information that satisfies the condition of exclusion from the transmission target.

14. A control method comprising:

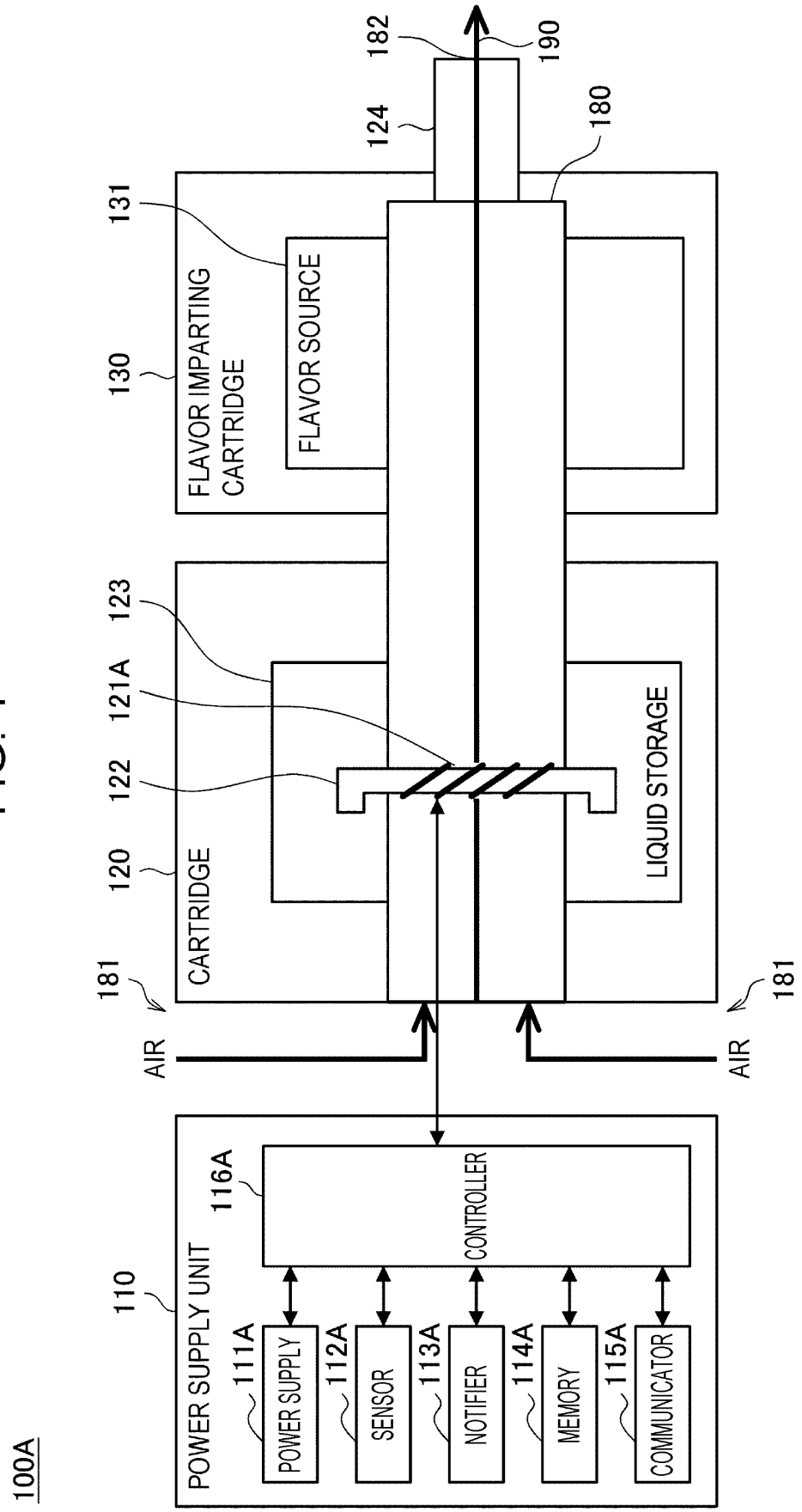
controlling a transmission process that is a process of, each time inhalation information that is information acquired in connection with inhalation performed by using an inhaler device is acquired, transmitting the acquired inhalation information, wherein
the controlling of the transmission process includes controlling a transmission source of the inhalation information so as to exclude the inhalation information from a transmission target of the transmission process when the inhalation information satisfies a condition of exclusion set by a user.

15. A program for causing a computer to function as

a controller that controls a transmission process that is a process of, each time inhalation information that is information acquired in connection with inhalation performed by using an inhaler device is acquired, transmitting the acquired inhalation information, wherein
the controller controls a transmission source of the inhalation information so as to exclude the inhalation information from a transmission target

of the transmission process when the inhalation information satisfies a condition of exclusion set by a user.

FIG. 1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CONTROLLER
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POWER SUPPLY
112A
SENSOR
113A
NOTIFIER
114A
MEMORY
115A
COMMUNICATOR
AIR
AIR
181
181
120
CARTRIDGE
122
121A
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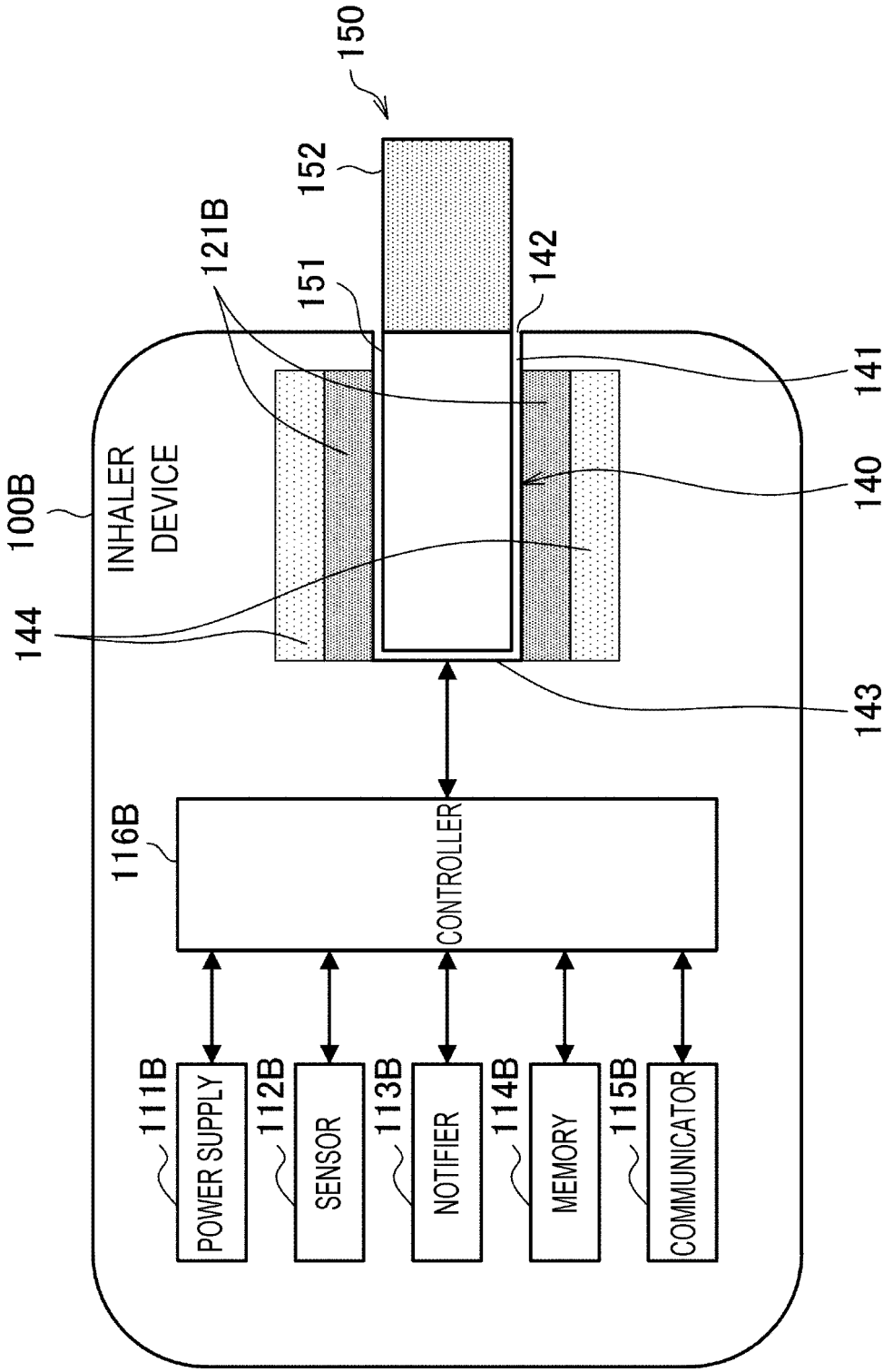
FLAVOR IMPARTING CARTRIDGE
131
FLAVOR SOURCE
124
182
190
180

FIG. 2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143
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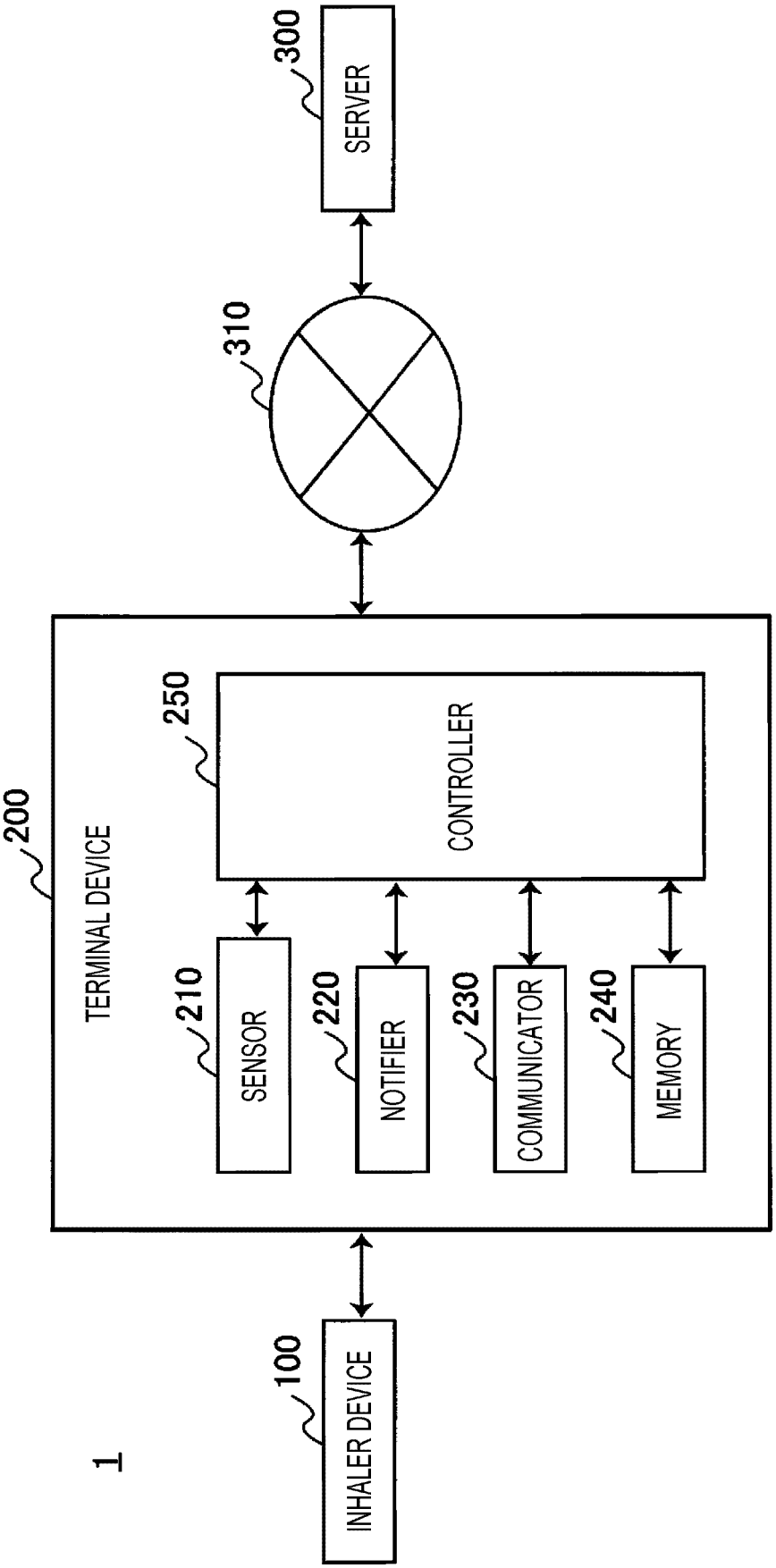
NOTIFIER
114B
MEMORY
115B
COMMUNICATOR

FIG. 3


1
100
INHALER DEVICE
200
TERMINAL DEVICE
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SENSOR
220
NOTIFIER
230
COMMUNICATOR
240
MEMORY
250
CONTROLLER
310
300
SERVER

FIG. 4

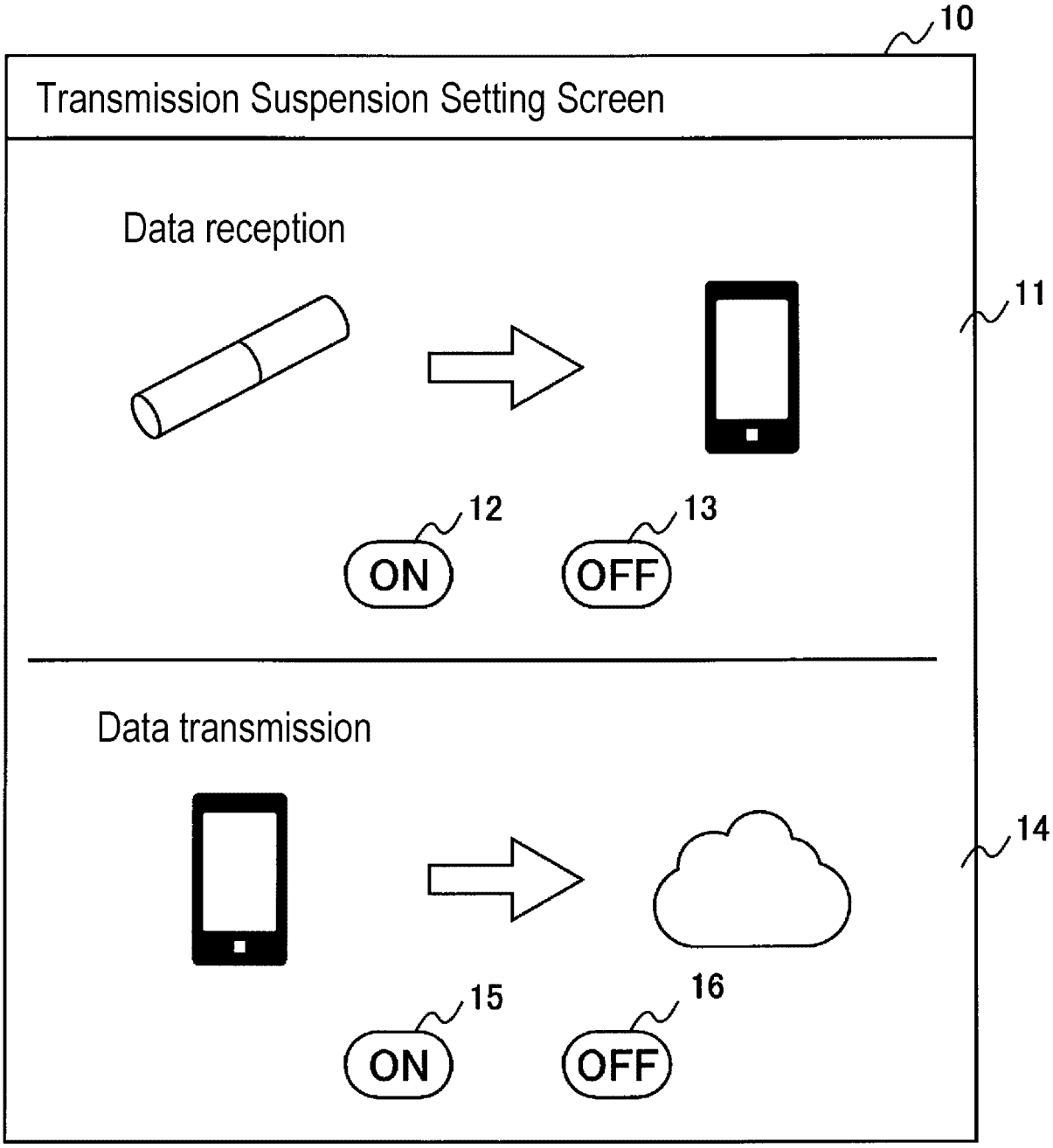

10
Transmission Suspension Setting Screen
Data reception
11
12
ON
13
OFF
Data transmission
14
15
ON
16
OFF

FIG. 5

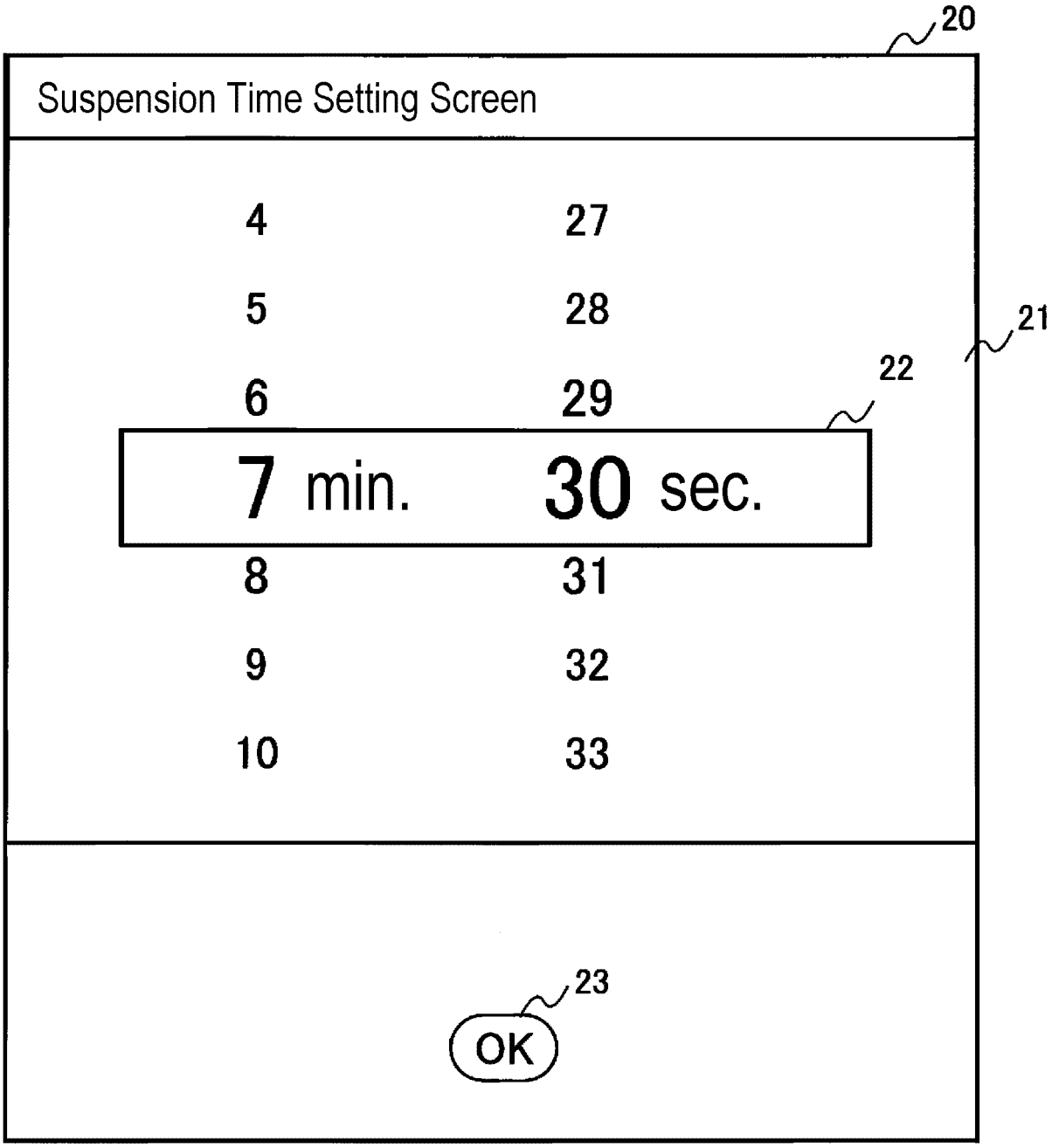

20
Suspension Time Setting Screen
4
5
6
7 min.
8
9
10
27
28
29
30 sec.
31
32
33
21
22
23
OK

FIG. 6

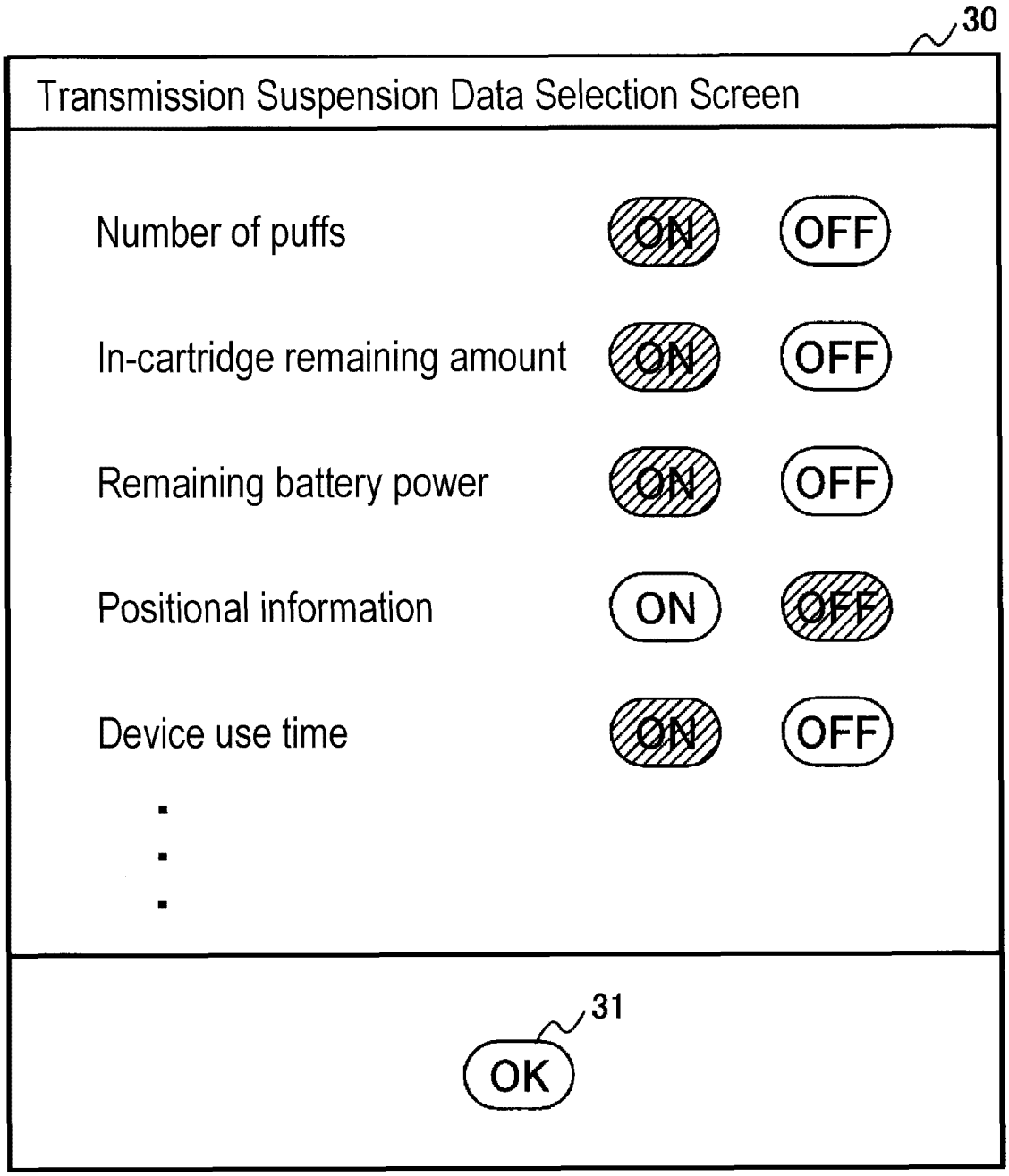

30
Transmission Suspension Data Selection Screen
Number of puffs
ON
OFF
In-cartridge remaining amount
ON
OFF
Remaining battery power
ON
OFF
Positional information
ON
OFF
Device use time
ON
OFF
31
OK

FIG. 7

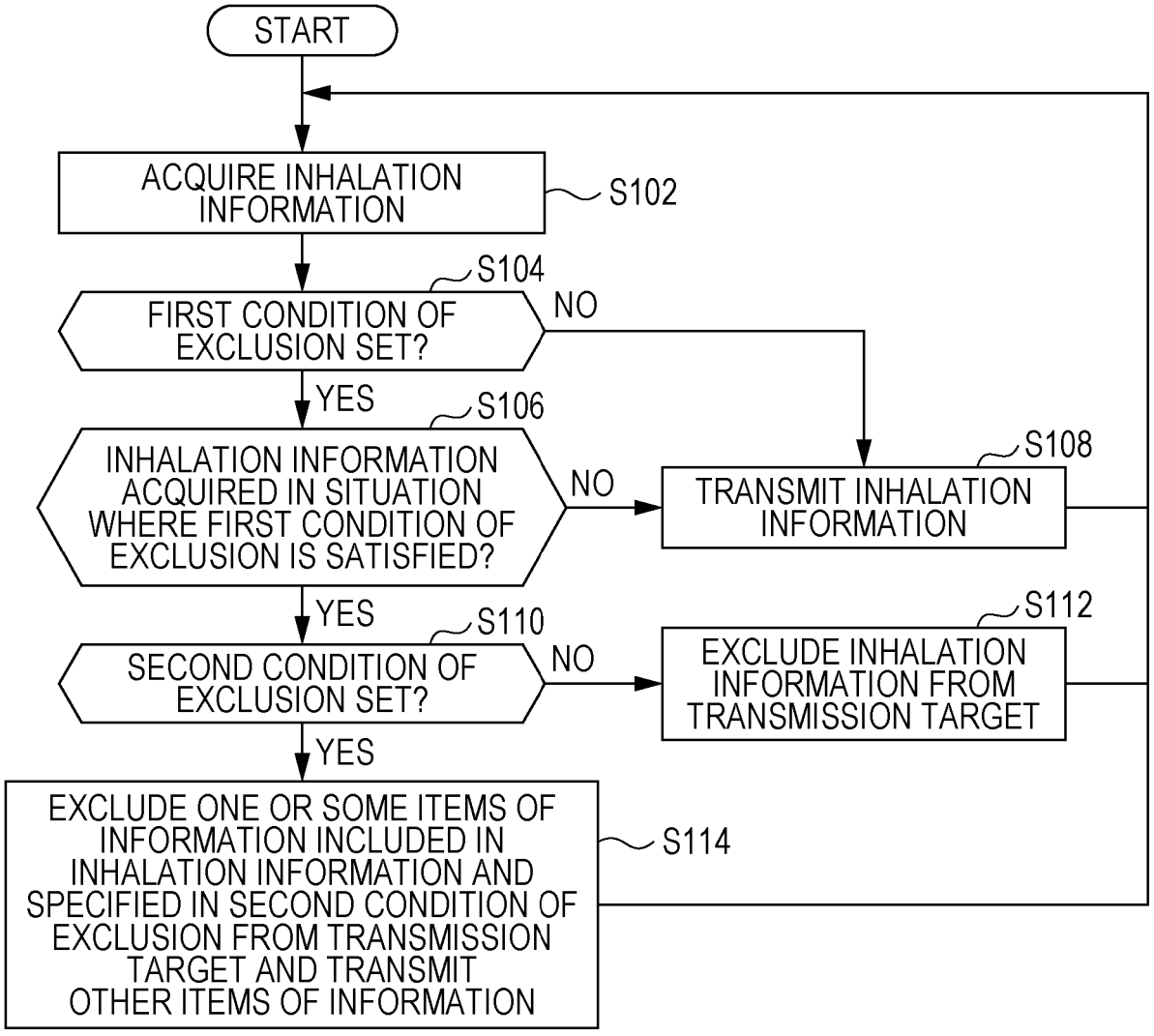
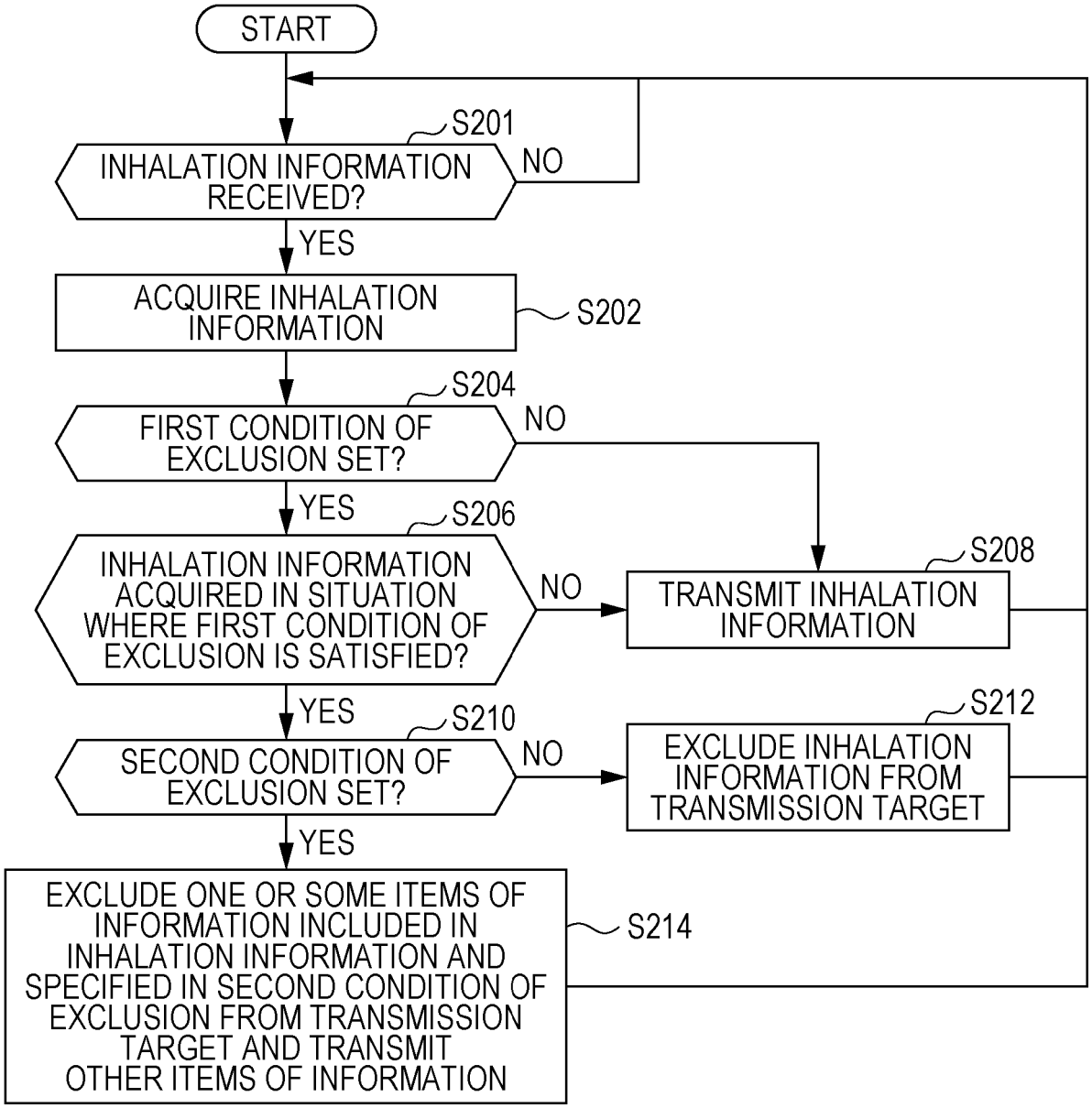

START
ACQUIRE INHALATION INFORMATION
S102
S104
FIRST CONDITION OF EXCLUSION SET?
NO
YES
S106
INHALATION INFORMATION ACQUIRED IN SITUATION WHERE FIRST CONDITION OF EXCLUSION IS SATISFIED?
NO
S108
TRANSMIT INHALATION INFORMATION
YES
S110
SECOND CONDITION OF EXCLUSION SET?
NO
S112
EXCLUDE INHALATION INFORMATION FROM TRANSMISSION TARGET
YES
EXCLUDE ONE OR SOME ITEMS OF INFORMATION INCLUDED IN INHALATION INFORMATION AND SPECIFIED IN SECOND CONDITION OF EXCLUSION FROM TRANSMISSION TARGET AND TRANSMIT OTHER ITEMS OF INFORMATION
S114

FIG. 8


START
S201
INHALATION INFORMATION RECEIVED?
NO
YES
ACQUIRE INHALATION INFORMATION
S202
S204
FIRST CONDITION OF EXCLUSION SET?
NO
YES
S206
INHALATION INFORMATION ACQUIRED IN SITUATION WHERE FIRST CONDITION OF EXCLUSION IS SATISFIED?
NO
S208
TRANSMIT INHALATION INFORMATION
YES
S210
SECOND CONDITION OF EXCLUSION SET?
NO
S212
EXCLUDE INHALATION INFORMATION FROM TRANSMISSION TARGET
YES
EXCLUDE ONE OR SOME ITEMS OF INFORMATION INCLUDED IN INHALATION INFORMATION AND SPECIFIED IN SECOND CONDITION OF EXCLUSION FROM TRANSMISSION TARGET AND TRANSMIT OTHER ITEMS OF INFORMATION
S214

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2019/050845

A. CLASSIFICATION OF SUBJECT MATTER
Int. Cl. A24F40/53(2020.01)i
FI: A24F47/00

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)
Int. Cl. A24F40/00-40/95, A61M15/06

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

Published examined utility model applications of Japan	1922-1996
Published unexamined utility model applications of Japan	1971-2020
Registered utility model specifications of Japan	1996-2020
Published registered utility model applications of Japan	1994-2020

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2019-521739 A (JUUL LABS INC.) 08 August 2019, in particular, paragraphs [0034], [0035], [0108]-[0133], fig. 3	1-15
Y	US 2015/0120867 A1 (ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE) 30 April 2015, in particular, paragraphs [0034]-[0037], [0054]	1-15
Y	JP 2009-17564 A (ZENRIN CO., LTD.) 22 January 2009, in particular, paragraphs [0047]-[0053]	1-15
Y	JP 2019-128784 A (YAHOO JAPAN CORP.) 01 August 2019, in particular, paragraph [0085]	1-15

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
02.03.2020	17.03.2020

Name and mailing address of the ISA/	Authorized officer
Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2019/198552 A1 (JAPAN TOBACCO INC.) 17 October 2019, paragraphs [0012]-[0132]	1-15

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/JP2019/050845

Patent Documents referred to in the Report	Publication Date	Patent Family	Publication Date
JP 2019-521739 A	08.08.2019	US 2018/0043114 A1 in particular, paragraphs [0061], [0062], [0137]-[0162], fig. 3 GB 2566185 A WO 2017/205692 A1 EP 3463535 A1 DE 112017002267 T5 TW 201808373 A CA 3025407 A1 AU 2017268810 A1 SG 11201810438V A KR 10-2019-0011264 A EA 201892738 A1 MX 2018014354 A CN 109963606 A BR 112018074122 A2	
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JP 2009-17564 A	22.01.2009	(Family: none)	
JP 2019-128784 A	01.08.2019	(Family: none)	
WO 2019/198552 A1	17.10.2019	(Family: none)	

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REFERENCES CITED IN THE DESCRIPTION

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