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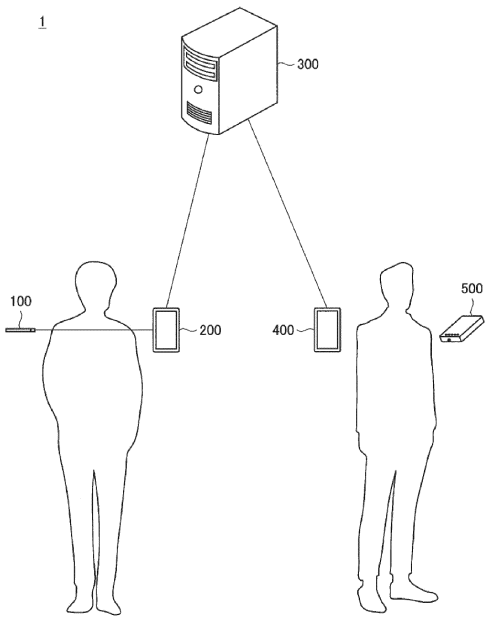
(54) AEROSOL PRODUCTION CONTROL DEVICE, TERMINAL DEVICE, MANAGEMENT DEVICE, POWER SUPPLY DEVICE, INFORMATION PROCESSING METHOD, AND PROGRAM

(57) [Problem] To prevent a reduction in usability accompanying a reduction in the residual quantity of power in a non-combustible-type flavor inhaler.

[Solution] This aerosol generation control device in a non-combustible-type flavor inhaler has a power source, a control unit, and a wireless communication unit, the aerosol generation control device being such that when a parameter indicating the residual quantity of power in the power source satisfies a prescribed condition, prescribed information is transmitted via wireless communication to an external device. The device that has received the information provides a service such as matching with a user who has a power supplying device, thereby assisting the supply of power to the non-combustible-type flavor inhaler.

Fig. 6



EP 3 912 493 A1

Description

TECHNICAL FIELD

[0001] The present invention relates to an aerosol generation control device, a terminal device, a management device, a power supplying device, an information processing method, and a program.

BACKGROUND ART

[0002] A non-combustion-type flavor inhaler for inhaling a flavor, without performing a burning process, has been known as an example of an inhaler. A typical non-combustion-type flavor inhaler comprises an aerosol source from which aerosol is generated, a heat source for heating the aerosol source without necessity of a combustion process, and a power source for supplying electric power to the heat source. A user can inhale a flavor together with aerosol, by inhaling (also referred to as puffing) aerosol generated from the heated aerosol source.

[0003] In recent years, it is attempted to provide a non-combustion-type flavor inhaler with a communication function to make it attempt cooperation with the other device. For example, Patent Literature 1, that is cited below, discloses a technique to upload a usage state of a non-combustion-type flavor inhaler to a server, to track the usage state of a user.

CITATION LIST

PATENT LITERATURE

[0004] PTL 1: PCT international publication No. WO 2016/187123

SUMMARY OF INVENTION

TECHNICAL PROBLEM

[0005] A puff action using a non-combustion-type flavor inhaler can be performed only when electric power is suppled to a heat source, so that the remaining quantity of electric power may largely affect usability. For example, when the sufficient quantity of electric power is not remained in the non-combustion-type flavor inhaler, it will become difficult for a user to inhale aerosol by performing a puff action. It is desirable to provide a means for facilitating prevention of (or precaution against or recovery from) lowering of usability.

[0006] The present invention has been achieved in view of the above problem; and an object of the present invention is to provide means that can prevent lowering of usability due to lowering of the remaining quantity of electric power in a non-combustion-type flavor inhaler.

SOLUTION TO PROBLEM

[0007] For solving the above problem, in a point of view of the present invention, an aerosol generation control device is provided, and the aerosol generation control device comprising: a power source which stores electric power that is supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; a control unit for judging whether a parameter representing the remaining quantity of electric power in the power source satisfies a predetermined condition; and a wireless communication unit for transmitting first information, when the control unit has judged that the parameter satisfies the predetermined condition.

[0008] The state wherein the predetermined condition is satisfied may include a state wherein the parameter represents that the remaining quantity of electric power is less than a predetermined threshold value.

[0009] The predetermined threshold value may be that used for judging whether electric power, that is sufficient for completely consuming at least one unused aerosol generation based material, remains in the power source.

[0010] The aerosol is sucked, together with a flavor generated from a flavor source, by a user, and the predetermined threshold value may be that used for judging whether electric power, that is sufficient for completely consuming at least one unused flavor source, remains in the power source.

[0011] The predetermined threshold value may be that used for judging whether electric power, that corresponds to a predetermined number of times of generation of aerosol, remains in the power source.

[0012] The predetermined threshold value may be that used for judging whether supply of electric power to the aerosol generating unit is to be limited.

[0013] The predetermined threshold value may be set based on identification information of the aerosol generation base-material and/or identification information of the flavor source.

[0014] The aerosol generation control device comprises a position detecting unit for detecting position information of the aerosol generation control device, and the first information may comprise the position information detected by the position detecting unit.

[0015] The aerosol generation control device comprises a storage unit for storing registration information of a power supplying service, and the first information may comprise the registration information stored in the storage unit.

[0016] The wireless communication unit may perform wireless communication using Bluetooth (a registered trademark) or LPWA (Low Power Wide Area).

[0017] The control unit may perform judgment as to whether the parameter satisfies the predetermined condition, by using, as a trigger thereof, an event that attaching/detaching of the aerosol generation base-material to/from the aerosol generation control device is detected, an event that authentication of the aerosol generation

base-material is completed successfully, an event that authentication of the flavor source which generates a flavor that is sucked by a user together with aerosol generated by the aerosol generation base-material is completed successfully, an event that the power source of the aerosol generation control device is turned on, or an event that a suction action performed by a user is detected.

[0018] For solving the above problem, in a different point of view of the present invention, a terminal device is provided, and the terminal device comprises: a receiving unit for receiving first information, that is transmitted from an aerosol generation control device comprises a power source for storing electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol, and relates to a remaining quantity of electric power in the power source; and a transmitting unit for transmitting second information corresponding to the first information.

[0019] The second information may comprise position information of the aerosol generation control device.

[0020] The terminal device comprises a position detecting unit for detecting position information of the terminal device; and the second information may comprise, as position information of the aerosol generation control device, the position information detected by the position detecting unit.

[0021] The position information of the aerosol generation control device may be positional information representing a position different from a position of the aerosol generation control device.

[0022] The terminal device may comprise an output unit for outputting information relating to a position of a power supplying device which can supply electric power to the aerosol generation control device.

[0023] The terminal device may comprise an output unit for outputting profile information of a user associated with a power supplying device which can supply electric power to the aerosol generation control device.

[0024] The terminal device may comprise an input unit for accepting an input of a reward given to a user associated with a power supplying device which has supplied electric power to the aerosol generation control device.

[0025] For solving the above problem, in a different point of view of the present invention, a management device is provided, and the management device comprises: a storage unit for storing position information of a power supplying device; a receiving unit for receiving position information of an aerosol generation control device comprising a power source for storing electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; a control unit for specifying the power supplying device which has predetermined positional relationship with the aerosol generation control device; and a transmitting unit for setting, as an object, the power supplying device specified by the control unit and transmitting third information.

[0026] The storage unit may store position information of the power supplying device in association with identification information of a user associated with the power supplying device.

[0027] The storage unit may store status information relating to the quantity of electric power that can be supplied by the power supplying device in association with identification information of a user associated with the power supplying device.

[0028] The third information may comprise position information of the aerosol generation control device.

[0029] The control unit may specify the power supplying device based on profile information of a user associated with the aerosol generation control device and/or a user associated with the power supplying device.

[0030] The control unit may judge whether a parameter representing a remaining quantity of electric power in the power source included in the aerosol generation control device satisfies a predetermined condition, and, if it is judged that the parameter satisfies the predetermined condition, specify the power supplying device having the predetermined positional relationship with the aerosol generation control device.

[0031] For solving the above problem, in a different point of view of the present invention, a terminal device is provided, and the terminal device comprises: a communication unit for receiving information relating to a remaining quantity of electric power in a power source included in an aerosol generation control device, wherein the power source stores electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; and an output unit for outputting information relating to a position of the aerosol generation control device and information representing a state that a request for supply of electric power to the aerosol generation control device is being made.

[0032] The output unit may output information that requests that a user make a decision of whether or not supply of electric power to the aerosol generation control device is to be performed.

[0033] The output unit may output profile information of a user associated with the aerosol generation control device.

[0034] The terminal device comprises a control unit which judges, based on status information relating to the quantity of electric power that can be supplied by a power supplying device associated with the terminal device, whether supplying of electric power to the aerosol generation control device is to be performed; and the communication unit may return information representing result of judgment by the control unit.

[0035] For solving the above problem, in a different point of view of the present invention, a power supplying device is provided, and the power supplying device comprises: a receiving unit for receiving information relating to a remaining quantity of electric power in a power source included in an aerosol generation control device, wherein the power source stores electric power supplied to an aerosol generating unit which makes an aerosol

generation base-material generate aerosol; a power source for storing electric power supplied to the aerosol generation control device; and a control unit which judges, based on information received by the receiving unit and relating to the remaining quantity of electric power, whether supplying of electric power to the aerosol generation control device is to be performed.

[0036] The control unit may control the quantity of supply of electric power to the aerosol generation control device.

[0037] The quantity of supply of electric power to the aerosol generation control device may be determined by using a ratio that is obtained by using, as a reference, the quantity corresponding to a predetermined number of times of generation of aerosol, a predetermined length of time of supply of electric power, or the remaining quantity of electric power in the power source.

[0038] For solving the above problem, in a different point of view of the present invention, an information processing method is provided, and the method comprises steps of: judging whether a parameter representing a remaining quantity of electric power in a power source satisfies a predetermined condition, wherein the power source is that for storing electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; and transmitting first information, when it is judged that the parameter satisfies the predetermined condition.

[0039] For solving the above problem, in a different point of view of the present invention, an information processing method is provided, and the method comprises steps of: receiving first information, that is transmitted from an aerosol generation control device comprising a power source for storing electric power supplied to an aerosol generating unit that makes an aerosol generation base-material generate aerosol, and relates to a remaining quantity of electric power in the power source; and transmitting second information corresponding to the first information.

[0040] For solving the above problem, in a different point of view of the present invention, an information processing method is provided, and the method comprises steps of: storing position information of a power supplying device; receiving position information of an aerosol generation control device comprising a power source for storing electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; specifying the power supplying device which has predetermined positional relationship with the aerosol generation control device; setting, as an object, the specified power supplying device and transmitting third information.

[0041] For solving the above problem, in a different point of view of the present invention, an information processing method is provided, and the method comprises steps of: receiving information relating to a remaining quantity of electric power in a power source included in an aerosol generation control device, wherein the power source stores electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; and outputting information relating to a position of the aerosol generation control device and information representing a state that a request for supplying of electric power to the aerosol generation control device is being made.

[0042] For solving the above problem, in a different point of view of the present invention, an information processing method is provided, and the method comprises steps of: receiving information relating to a remaining quantity of electric power in a power source included in an aerosol generation control device, wherein the power source stores electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; and judging, based on received information relating to the remaining quantity of electric power, whether supplying of electric power from a power source, which stores electric power supplied to the aerosol generation control device, to the aerosol generation control device is to be performed.

[0043] For solving the above problem, in a different point of view of the present invention, a program which makes a computer perform processes is provided, and the processes comprise: a process for judging whether a parameter representing a remaining quantity of electric power in a power source satisfies a predetermined condition, wherein the power source is that for storing electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; and a process for transmitting first information, when it is judged that the parameter satisfies the predetermined condition.

[0044] For solving the above problem, in a different point of view of the present invention, a program which makes a computer perform processes is provided, and the processes comprise: a process for receiving first information, that is transmitted from an aerosol generation control device comprising a power source for storing electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol, and relates to a remaining quantity of electric power in the power source; and a process for transmitting second information corresponding to the first information.

[0045] For solving the above problem, in a different point of view of the present invention, a program which makes a computer perform processes is provided, and the processes comprise: a process for receiving information relating to a remaining quantity of electric power in a power source included in an aerosol generation control device, wherein the power source stores electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; and a process for outputting information relating to a position of the aerosol generation control device and information representing a state that a request for supplying of electric power to the aerosol generation control device is be-

ing made.

[0046] For solving the above problem, in a different point of view of the present invention, a program which makes a computer perform processes is provided, and the processes comprise: a process for receiving information relating to a remaining quantity of electric power in a power source included in an aerosol generation control device, wherein the power source stores electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; and a process for judging, based on received information relating to he remaining quantity of electric power, whether supplying of electric power from a power source, which stores electric power supplied to the aerosol generation control device, to the aerosol generation control device is to be performed.

ADVANTAGEOUS EFFECTS OF INVENTION

[0047] As explained above, according to the present invention, means that can prevent lowering of usability due to lowering of the remaining quantity of electric power in a non-combustion-type flavor inhaler is provided.

BRIEF DESCRIPTION OF DRAWINGS

[0048]

Fig. 1 is a figure showing a construction example of a non-combustion-type flavor inhaler according to an embodiment of the present invention.

Fig. 2 is a figure showing a construction example of a connecting device used for supplying power, according to an embodiment of the present invention.

Fig. 3 is a figure showing a construction example of a non-combustion-type flavor inhaler according to an embodiment of the present invention.

Fig. 4 is a general perspective view of a non-combustion-type flavor inhaler in the state that it is holding an aerosol generation base-material, according to an embodiment of the present invention.

Fig. 5 is a cross-section view of a smoking article.

Fig. 6 is a figure showing a general construction example of a system according to a first embodiment.

Fig. 7 is a block diagram showing a construction example of a non-combustion-type flavor inhaler according to the above embodiment.

Fig. 8 is a block diagram showing a construction example of a first terminal device according to the above embodiment.

Fig. 9 is a block diagram showing a construction example of a management device according to the above embodiment.

Fig. 10 is a block diagram showing a construction example of a second terminal device according to the above embodiment.

Fig. 11 is a figure showing an example of a UI screen displayed by the second terminal device according to the above embodiment.

Fig. 12 is a sequence diagram showing an example of a flow of a power supplying process performed by a system according to the above embodiment.

Fig. 13 is a figure showing an example of a UI screen displayed by a first terminal device according to a first modified example.

Fig. 14 is a sequence diagram showing an example of a flow of a power supplying process performed by a system according to the above modified example.

Fig. 15 is a sequence diagram showing an example of a flow of a power supplying process performed by a system according to a second modified example.

Fig. 16 is a figure showing a general construction example of a system according to a second embodiment.

Fig. 17 is a sequence diagram showing an example of a flow of a power supplying process performed by a system according to the above embodiment.

Fig. 18 is a figure showing a general construction example of a system according to a third embodiment.

Fig. 19 is a block diagram showing a construction example of a power supplying device according to the above embodiment.

Fig. 20 is a sequence diagram showing an example of a flow of a power supplying process performed by a system according to the above embodiment.

DESCRIPTION OF EMBODIMENTS

[0049] In the following description, preferred embodiments of the present invention will be explained in detail with reference to the attached figures. In this regard, in the specification and the figures, for omitting overlapping explanations, a reference number that is the same as that assigned to one component is assigned to the other component, in the case that the other component has a function/construction that is substantially the same as that of the one component.

« 1. Introduction »

< 1.1. Outline of Suggested Technique >

[0050] A suggested technique relates to an electric power supplying service for a non-combustion-type flavor inhaler in which the remaining quantity of electric power has been lowered. Supply of electric power to a non-combustion-type flavor inhaler (i.e., charging a non-combustion-type flavor inhaler) can be realized by using a power supplying device which is used (i.e., carried) by a second user who is different from a first user using (i.e., carrying) the non-combustion-type flavor inhaler, or is installed in an environment. Specifically, by using, as a trigger, an event that information relating to the remaining quantity of electric power (hereinafter, this may also be referred to as help information) is transmitted by a non-

combustion-type flavor inhaler, a power supplying device which can supply electric power to the non-combustion-type flavor inhaler, in which the remaining quantity of electric power has been lowered, is specified. Thereafter, supply of electric power is realized by making the first user and/or the second user move to join the non-combustion-type flavor inhaler and the power supplying device and connecting them with each other, or the like. By providing an electric power supplying service such as that explained above, it becomes possible to prevent lowering of usability due to lowering of the remaining quantity of electric power in the non-combustion-type flavor inhaler, even if the first user does not carry a power supplying device.

< 1.2. Construction of Non-combustion-type Flavor Inhaler >

(1) First Construction Example

[0051] In the following description, a first construction example of a non-combustion-type flavor inhaler according to the present invention will be explained with reference to Fig. 1. Fig. 1 is a figure showing a construction example of a non-combustion-type flavor inhaler 100A according to an embodiment of the present invention.

[0052] As shown in Fig. 1, the non-combustion-type flavor inhaler 100A comprises a first member 110 and a second member 120. For example, as shown in the figure, the first member 110 may comprise a notification unit 111, a battery 112, a sensor 113, a storage unit 114, and a control unit 115. For example, the second member 120 may comprise a reservoir 121, an atomizing part 122, an air taking-in flow path 123, an aerosol flow path 124, and a suction opening part 125. Part of components included in the first member 110 may be included in the second member 120. Part of components included in the second member 120 may be included in the first member 110. The second member 120 may be constructed to be attachable/detachable to/from the first member 110. Alternatively, all components included in the first member 110 and the second member 120 may be included in a single housing in place of the first member 110 and the second member 120.

[0053] Further, as shown in Fig. 1, the non-combustion-type flavor inhaler 100A comprises a third member 130. For example, the third member 130 may comprise a flavor source 131. For example, in the case that the non-combustion-type flavor inhaler 100A is an electronic cigarette, the flavor source 131 may comprise a fragrance-inhaling-taste component included in tobacco. The third member 130 may be constructed to be attachable/detachable to/from the second member 120. Alternatively, all components included in the second member 120 and the third member 130 may be included in a single housing in place of the second member 120 and the third member 130.

[0054] The reservoir 121 holds an aerosol source. For example, the reservoir 121 comprises fibrous or porous material, and holds the aerosol source, which is in the form of liquid, by use of spaces between fibers or pores in the porous material. For example, cotton or glass fibers, or tobacco raw material, or the like may be used as the above-explained fibrous or porous material. The reservoir 121 may be constructed as a tank for storing liquid. The aerosol source is liquid such as polyhydric alcohol, such as glycerin or propylene glycol, or water, or the like, for example. In the case that the non-combustion-type flavor inhaler 100A is an inhaler for medical use, such as a nebulizer or the like, the aerosol source may comprise a medicine that is to be sucked by a patient. In a different example, the aerosol source may comprise a tobacco raw material or an extract originated from a tobacco raw material, which releases a fragrance-inhaling-taste component when it is heated. In the above case, aerosol including a flavor component is generated even if the third member 130 is not attached. The reservoir 121 may have a construction which allows replenishment of a consumed aerosol source. Alternatively, the reservoir 121 may be constructed in such a manner that the reservoir 121 itself is allowed to be replaced when the aerosol source is exhausted. Further, the aerosol source is not limited to that in a liquid form, and it may be solid. In the case that the aerosol source is solid, the reservoir 121 may be a hollow container which does not use fibrous or porous material, for example.

[0055] The atomizing part 122 is constructed to atomize an aerosol source to generate aerosol. When a suction action is detected by the sensor 113, the atomizing part 122 generates aerosol. For example, a wick (not shown in the figure) is arranged for connection between the reservoir 121 and the atomizing part 122. In the above case, a part of the wick extends to the inside of the reservoir 121 and is in contact with the aerosol source. The other part of the wick extends toward the atomizing part 122. The aerosol source is sent from the reservoir 121 to the atomizing part 122 by capillary effect in the wick. In an example, the atomizing part 122 comprises a heater which is electrically connected to the battery 112. The heater is arranged to be in contact with or to be positioned close to the wick. When a suction action is detected, the control unit 115 controls the heater in the atomizing part 122 to heat an aerosol source, which is conveyed via the wick, to thereby atomizing the aerosol source. Another example of the atomizing part 122 may be an ultrasonic-type atomizer which atomizes the aerosol source by ultrasonic vibration. The air taking-in flow path 123 is connected to the atomizing part 122, and the air taking-in flow path 123 leads to the outside of the non-combustion-type flavor inhaler 100A. The aerosol generated in the atomizing part 122 is mixed with air that is taken via the air taking-in flow path 123. The fluid mixture comprising the aerosol and the air is sent to the aerosol flow path 124, as shown by an arrow 126. The aerosol flow path 124 has a tubular structure for sending the fluid mixture comprising the air and the aerosol, that is generated in

the atomizing part 122, to the suction opening part 125.

[0056] The flavor source 131 is a component for adding flavor to aerosol. The flavor source 131 is positioned in the middle of the aerosol flow path 124. The fluid mixture comprising the air and the aerosol generated by the atomizing part 122 (hereinafter, it should be reminded that the fluid mixture may simply be referred to as aerosol) flows to the suction opening part 125 through the aerosol flow path 124. In this manner, in the point of view of the flow of the aerosol, the flavor source 131 is arranged in a position downstream the atomizing part 122. In other words, in the aerosol flow path 124, the position of the flavor source 131 is closer to the suction opening part 125 than the position of the atomizing part 122. Thus, the aerosol generated in the atomizing part 122 passes through the flavor source 131 and thereafter arrives at the suction opening part 125. When the aerosol passes through the flavor source 131, fragrance-inhaling-taste components included in the flavor source 131 are added to the aerosol. For example, in the case that the non-combustion-type flavor inhaler 100A is an electronic cigarette, the flavor source 131 may be that which originates from tobacco, such as shredded tobacco, a product which is made by processing tobacco raw material to have a granular form, a sheet form, or a powder form, or the like. Further, flavor source 131 may be that which does not originate from tobacco, such as a product made by use of a plant other than tobacco (for example, mint, a herb, and so on). For example, the flavor source 131 comprises a nicotine component. The flavor source 131 may comprise a flavor component such as menthol. In addition to the flavor source 131, the reservoir 121 may also have a material comprising a fragrance-inhaling-taste component. For example, the non-combustion-type flavor inhaler 100A may be constructed in such a manner that the flavor source 131 holds flavor material which originates from tobacco and the reservoir 121 includes flavor material which does not originate from tobacco.

[0057] The suction opening part 125 is constructed in such a manner that it is positioned at an end of the aerosol flow path 124, and is opened to the outside of the non-combustion-type flavor inhaler 100A. As shown in the figure, the aerosol flow path 124 extends across the second member 120 and the third member 130. The suction opening part 125 is positioned in the third member 130.

[0058] A user takes air including the aerosol, to which the flavor has been added, into the mouth by holding the suction opening part 125 in the user's mouth and sucking the air.

[0059] The notification unit 111 may comprise a light emitting element such as an LED, a display, a speaker, a vibrator, and so on. The notification unit 111 is constructed to provide a user with some information by light emission, display, vocalization, vibration, or the like, as necessary.

[0060] The battery 112 is a power source which stores electric power, and supplies electric power to the respective components in the non-combustion-type flavor inhaler 100A, such as the notification unit 111, the sensor 113, the storage unit 114, the atomizing part 122, and so on. The battery 112 may be charged by connecting it to an external electric power source via a predetermined port (not shown in the figure) of the non-combustion-type flavor inhaler 100A. The battery 112 only may be able to be detached from the first member 110 or the non-combustion-type flavor inhaler 100A, and may be able to be replaced by a new battery 112. Alternatively, the battery 112 may be able to be replaced by a new battery 112, by replacing the whole first member 110 by a new first member 110.

[0061] The sensor 113 may comprise a pressure sensor for detecting change in the pressure or a flow rate sensor for detecting a flow rate in the air taking-in flow path 123 and/or the aerosol flow path 124. Further, the sensor 113 may comprise a weight sensor for detecting the weight of a component such as the reservoir 121 or the like. Further, the sensor 113 may be constructed to count the number of times of puffs performed by a user by using the non-combustion-type flavor inhaler 100A. Further, the sensor 113 may be constructed to accumulate time of electrical conduction to the atomizing part 122. Further, the sensor 113 may be constructed to detect height of a liquid surface in the reservoir 121. Further, the sensor 113 may be constructed to detect attachment/detachment of the second member 120 to/from the first member 110, or attachment/detachment of the third member 130 to/from the second member 120. Further, the sensor 113 may be constructed to detect an SOC (State of Charge), an integrated current value, a voltage, or the like of the battery 112. The integrated current value may be obtained by using a current integration method, an SOC-OCV (Open Circuit Voltage) method, or the like. Further, the sensor 113 may be a manipulation button which can be manipulated by a user.

[0062] The control unit 115 may be an electronic circuit module constructed as a microprocessor or a microcomputer. The control unit 115 may be constructed to control operation of the non-combustion-type flavor inhaler 100A in accordance with computer-executable instructions stored in the storage unit 114. The storage unit 114 is a storage medium such as a ROM, a RAM, a flash memory, or the like. The storage unit 114 may store, in addition to computer-executable instructions such as those explained above, setting data which are necessary for controlling the non-combustion-type flavor inhaler 100A and other data. For example, the storage unit 114 may store various data such as methods for controlling the notification unit 111 (modes of light emission, vocalization, vibration, etc., and so on), values detected by the sensor 113, history of heating of the atomizing part 122, and so on. The control unit 115 reads data from the storage unit 114 and uses the data for controlling the non-combustion-type flavor inhaler 100A as necessary, and stores data in the storage unit 114 as necessary.

[0063] In the following description, the first member 110 is also referred to as an electric unit 110, the second

member is also referred to as an atomizing unit 120, and a third member 130 is also referred to as a capsule unit 130.

[0064] It should be reminded that, in the above-explained construction, the electric unit 110 corresponds to an aerosol generation control device, and the atomizing unit 120 (more precisely, an aerosol source held in the reservoir 121) corresponds to an aerosol generation base-material. Further, the atomizing part 122 corresponds to an aerosol generating unit which makes the aerosol generation base-material generate aerosol.

(2) Mechanism for Supplying Electric Power

[0065] Fig. 2 is a figure showing a construction example of a connecting device used for supplying electric power, according to an embodiment of the present invention. As shown in Fig. 2, the connecting device 160 used for supplying electric power comprises a male connector 161 and a USB (Universal Serial Bus) connector 162. Further, the electric unit 110 of the non-combustion-type flavor inhaler 110A comprises a female connector 119.

[0066] The male connector 161 comprises a spiral-shaped projection. By screwing the female connector 119 and the male connector 161 together, the electric unit 110 and the connecting device 160 used for supplying electric power are connected with each other. Each of the electric unit 110 and the connecting device 160 used for supplying electric power is constructed to be attachable/detachable to/rom the other.

[0067] The USB connector 162 is connected to a USB connector of a different device, and it functions as a communication path between it and the connected different device and also functions to receive supply of electric power from the different device. Electric power supplied to the USB connector 162 is supplied, via the connection part between the female connector 119 and the male connector 161, to the electric unit 110, and the battery 112 is charged thereby. For example, the USB connector 162 may receive supply of electric power from a different device, when the USB connector 162 is connected to a USB connector of the different device. Further, the USB connector 162 may be connected to a domestic AC power source, via an AC adapter which converts the domestic AC power source, to receive supply of electric power from the domestic AC power source.

(3) Second Construction Example

[0068] In the following description, a second construction example of a non-combustion-type flavor inhaler according to an embodiment of the present invention will be explained with reference to Fig. 3 to Fig. 5. Fig. 3 is a figure showing a construction example of a non-combustion-type flavor inhaler 100B according to an embodiment of the present invention.

[0069] Fig. 3 is a general perspective view of an electronic device according to an embodiment of the present invention. Fig. 4 is a general perspective view of a non-combustion-type flavor inhaler in the state that it is holding an aerosol generation base-material, according to the embodiment of the present invention. In the present embodiment, the non-combustion-type flavor inhaler 100B is constructed to generate aerosol including a flavor, for example, by heating an aerosol generation base-material, such as a smoking article, which comprises an aerosol source and a flavor generation base-material such as a filling article including a flavor source. In the second construction example in the following description, the smoking article 180 is used as an aerosol generation base-material.

[0070] A person skilled in the art will understand that the smoking article 180 is a mere example of an aerosol generation base material. An aerosol source included in an aerosol generation base material may be solid or liquid. The aerosol source is liquid such as polyhydric alcohol, such as glycerin or propylene glycol, or water, or the like, for example. The aerosol source may comprise a tobacco raw material or an extract originated from a tobacco raw material, which releases a fragrance-inhaling-taste component when it is heated. In the case that the non-combustion-type flavor inhaler 100B is an inhaler for medical use, such as a nebulizer or the like, the aerosol source may comprise a medicine that is to be sucked by a patient. The aerosol generation base material may not comprise a flavor source, depending on intended use thereof.

[0071] As shown in Figs. 3 and 4, the non-combustion-type flavor inhaler 100B comprises a top housing 171A, a bottom housing 171B, a cover 172, a switch 173, and a lid part 174. Further, as shown in Fig. 4, the non-combustion-type flavor inhaler 100B comprises a heating unit 175 therein. The outermost housing 171 of the non-combustion-type flavor inhaler 100B is constructed as a result that the top housing 171A and the bottom housing 171B are connected to each other. The housing 171 may have a size that fits in a hand of a user. In the above case, when a user uses the non-combustion-type flavor inhaler 100B, the user can hold the non-combustion-type flavor inhaler 100B by a user's hand, and suck aerosol.

[0072] The top housing 171A comprises an opening (not shown in the figures), and the cover 172 is coupled to the top housing 171A to close the opening. As shown in Fig. 4, the cover 172 has an opening 172a into which the smoking article 180 can be inserted. The lid part 174 is constructed to open/close the opening 172a of the cover 172. Specifically, the lid part 174 is attached to the cover 172, and constructed to be able to move, along a surface of the cover 172, between a first position for closing the opening 172a and a second position for opening the opening 172a.

[0073] The switch 173 is used for switching between an ON state and an OFF state of operation of the non-combustion-type flavor inhaler 100B. For example, in a state that the smoking article 180 has been inserted in

the opening 172a and attached therein as shown in Fig. 4, a user can make the smoking article 180 be heated without combustion thereof, by manipulating the switch 173 to thereby supply electric power from a battery (not shown in the figures) to the heating unit 175. As a result that the smoking article 180 is heated, aerosol is generated from an aerosol source included in the smoking article 180, and flavor in a flavor source is taken in the aerosol. A user can suck aerosol including flavor, by sucking it from a part of the smoking article 180 projecting from the non-combustion-type flavor inhaler 100 (the part shown in Fig. 4). In this regard, in this specification, a direction along that an aerosol generation base material such as the smoking article 180 is inserted to the opening 172a is referred to as a longitudinal direction of the non-combustion-type flavor inhaler 100B.

[0074] The heating unit comprises a heating assembly extending in the longitudinal direction. The heating assembly comprises plural cylindrical members, and is formed as a cylindrical body as a whole. The heating assembly is constructed to be able to house part of the smoking article 180 therein, and has a function to define a flow path of air supplied to the smoking article 180 and a function to heat the smoking article 180 from the outer periphery thereof.

[0075] The construction of the non-combustion-type flavor inhaler 100B shown in each of Figs. 3 and 4 is a mere example of a non-combustion-type flavor inhaler according to the present invention. A non-combustion-type flavor inhaler according to the present invention can be constructed to have any one of various types of forms, wherein, in each form, aerosol is generated by heating an aerosol generation base material comprising an aerosol source and the generated aerosol is allowed to be sucked by a user.

[0076] Next, as an example of an aerosol generation base material used in the non-combustion-type flavor inhaler 100B according to the present embodiment, the construction of the smoking article 180 will be explained. Fig. 5 is a cross-section view of the smoking article 180. In the embodiment shown in Fig. 5, the smoking article 180 comprises a base-material part 180A, which comprises a filling article 181 (this corresponds to an example of a flavor generation base material) and first rolling paper 182 by which the filling article 181 is wound, and a suction opening part 180B which forms an end part opposite to the base-material part 180A. The base-material part 180A and the suction opening part 180B are connected by second rolling paper 183 which is different from the first rolling paper 182. In this regard, it is possible to connect the base-material part 180A and the suction opening part 180B by using the first rolling paper 182, i.e., by omitting the second rolling paper 183.

[0077] The suction opening part 180B in Fig. 5 comprises a paper tube part 184, a filter part 185, and a hollow segment part 186 positioned between the paper tube part 184 and the filter part 185. For example, the hollow segment part 186 comprises a filling layer including one or plural hollow channels, and a plug wrapper for covering the filling layer. Since the density of filled fibers in the filling layer is high, air and aerosol flows through the hollow channel only, and almost no air and aerosol flows through the filling layer, when suction action is performed. Regarding the smoking article 180, if it is desired to lower a decrease in the quantity of delivery of aerosol due to filtering of the aerosol components in the filter part 185, shortening the length of the filter part 185 and replacing that part by the hollow segment part 186 will be effective for increasing the quantity of delivery of the aerosol.

[0078] In the embodiment shown in Fig. 5, the suction opening part 180B comprises three segments. However, in the other embodiment, the suction opening part 180B may be constructed by using one or two segments, or may be constructed by using four or more segments. For example, it is possible to omit the hollow segment part 186, and form the suction opening part 180B by arranging the paper tube part 184 and the filter part 185 adjacent to each other.

[0079] In the embodiment shown in Fig. 5, regarding the length in the longitudinal direction of the smoking article 180, it is preferable to set it to 40-90 mm, more preferable to set it to 50-75 mm, and still more preferably to set it to 50-60 mm. Regarding the circumference of the smoking article 180, it is preferable to set it to 15-25 mm, more preferable to set it to 17-24 mm, and still more preferably to set it to 20-22 mm. Further, regarding the smoking article 180, the length of the base-material part 180A may be 20 mm, the length of the first rolling paper 182 may be 20 mm, the length of the hollow segment part 186 may be 8 mm, and the length of the filter part 185 may be 7 mm The length of each of the above segments may be changed appropriately, according to suitability to manufacture, required quality, and so on.

[0080] In the present embodiment, the filling article 181 in the smoking article 180 may comprise an aerosol source which generates aerosol when it is heated at predetermined temperature. The kind of the aerosol source is not specifically limited, and extracted material and/or components obtained from various natural products may be selected as an aerosol source according to intended use. Glycerin, propylene glycol, triacetin, 1,3-butanediol, and a mixture thereof, for example, can be listed as aerosol sources. The aerosol source content of the filling article 181 is not specifically limited; and, in view of generation of sufficient quantity of aerosol and satisfactory addition of fragrance inhaling taste, the aerosol source content is usually equal to or greater than 5 weight percent, and is preferably equal to or greater than 10 weight percent, and is usually equal to or less than 50 weight percent, and is preferably equal to or less than 20 weight percent.

[0081] The filling article 181 in the smoking article 180 in the present embodiment may comprise shredded tobacco as a flavor source. The material of shredded tobacco is not specifically limited, and publicly known material such as a lamina, a stem, and so on may be used

as the material. The range of the content of the filling article 181 in the smoking article 180, in the case that the circumference is 22 mm and the length is 20 mm, is, for example, 200-400 mg, and, preferably, 250-320 mg. The water content of the filling article 181 is, for example, 8-18 weight percent, and is preferably 10-16 weight percent. In the case that the water content is that explained above, occurrence of staining at the time of rolling is suppressed, and suitability to rolling at the time of manufacture of the base-material part 180A is made satisfactory. There is no special limitation with respect to the size, the preparation method, and so on of the shredded tobacco used as the filling article 181. For example, dried tobacco leaves cut into pieces, each having the width of 0.8-1.2 mm, may be used. Alternatively, dried tobacco leaves are crushed and uniformized to become particles, regarding which the average particle size is approximately 20-200 μm, and the particles are processed to become a sheet, and the sheet cut into pieces, each having the width of 0.8-1.2 mm, may be used. Further, the above sheet formed via the sheet process may be processed to gather it without cutting it, and the gathered sheet may be used as the filling article 181. Further, the filling article 181 may comprise one kind or two or more kinds of flavors. The kinds of flavors are not specifically limited; however, in view of provision of satisfactory smoke flavor, a flavor is menthol, preferably.

[0082] In the present embodiment, each sheet of the first and second rolling paper 182 and 183 in the smoking article 180 may be constructed by use of base paper which has the basis weight of, for example, 20-65 gsm, and, preferably, 25-45 gsm. The thickness of each sheet of the first and second rolling paper 182 and 183 is not specifically limited; however, in view of rigidness, gas permeability, and easiness of adjustment at the time of paper manufacture, the thickness is set to 10-100 μm, preferably, set to 20-75 μm, and, more preferably, set to 30-50 μm.

[0083] In the present embodiment, filler may be included in the rolling paper 182 and 183 in the smoking article 180. The filler content may be equal to or greater than 10 weight percent and less than 60 weight percent, and, may preferably be 15-45 weigh percent, with respect to the total weight of the first rolling paper 182 and the second rolling paper 183. In the present embodiment, it is preferable that the filler be 15-45 weight percent, with respect to a preferable range of basis weight (25-45 gsm). For example, calcium carbonate, titanium dioxide, kaolin, and so on may be used as filler. Paper including filler such as that explained above presents a white color that is preferable in view of appearance of paper used as rolling paper of the smoking article 180, and is able to keep its whiteness permanently. By including a large quantity of filler such as that explained above, the ISO whiteness of rolling paper can be raised to 83 % or more, for example. Further, in view of practicality in terms of use of it as rolling paper in the smoking article 180, it is preferable that the first rolling paper 182 and the second rolling paper 183 have the tensile strength of 8N/15mm or more. The tensile strength can be increased by reducing the filler content. Specifically, the tensile strength can be increased by reducing the filler content to that less than the upper limit of the filler content that has been shown with respect to each range of the basis weight illustrated in the above description.

[0084] The non-combustion-type flavor inhaler 100B also comprises components equivalent to a notification unit 111, a battery 112, a sensor 113, a storage unit 114, and a control unit 115 which have been explained with reference to Fig. 5, although they are not shown in Fig. 3 to Fig. 5.

[0085] It should be reminded that, in the construction explained above, the non-combustion-type flavor inhaler 100B corresponds to an aerosol generation control device. Further, the smoking article 180 corresponds to an aerosol generation base material, and, in addition, it can be considered as that corresponding to a flavor source. Further, the heating unit 175 corresponds to an aerosol generating unit which makes an aerosol generation base material generate aerosol.

(4) Supplementary Explanation

[0086] The non-combustion-type flavor inhalers 100A and 100B are collectively referred to as a non-combustion-type flavor inhaler 100 also. In this regard, in the following description, an embodiment, regarding which it is assumed that the non-combustion-type flavor inhalers 100A is used therein, of the present invention will be explained mainly, and specific characteristics relating to the non-combustion-type flavor inhalers 100B will be explained when necessary.

« 2. First Embodiment »

[0087] The present embodiment comprises a form wherein supply of electric power to a non-combustion-type flavor inhalers 100 used by a first user from a power supplying device used by a second user is realized via matching performed by a management device.

< 2.1. Outline >

[0088] Fig. 6 is a figure showing a general construction example of a system according to a first embodiment. As shown in Fig. 6, a system 1 according to the present embodiment comprises a non-combustion-type flavor inhaler 100, a first terminal device 200, a management device 300, a second terminal device 400, and a power supplying device 500. The non-combustion-type flavor inhaler 100 and the first terminal device 200 are used by a first user. The second terminal device 400 and the power supplying device 500 are used by a second user. In this regard, although a single first user and a single second user, and each of the devices used by the users, are shown in Fig. 6, plural first users and plural second users

relate to the system 1. That is, the system 1 comprises plural non-combustion-type flavor inhalers 100, plural first terminal devices 200, plural second terminal devices 400, and plural power supplying devices 500.

[0089] The system 1 uses an event of transmission of help information from the non-combustion-type flavor inhaler 100, as a trigger, to specify a power supplying device 500 which can supply electric power to the non-combustion-type flavor inhaler 100 in which the remaining quantity of electric power has been lowered. In the following description, the above process is also referred to as matching. Thereafter, the system 1 makes the first user using the matched non-combustion-type flavor inhaler 100 and/or the second user using the matched power supplying device 500 move for joining the first user and the second user together. Afterj oining them together, by connecting the non-combustion-type flavor inhaler 100 to the power supplying device 500, for example, via a connecting device 160 used for supplying power, supply of electric power from the power supplying device 500 to the non-combustion-type flavor inhaler 100 is realized.

[0090] In this regard, the non-combustion-type flavor inhaler 100 is associated with the first user and the first terminal device 200. Also, the power supplying device 500 is associated with the second user and the second terminal device 400. Thus, matching between the non-combustion-type flavor inhaler 100 and the power supplying device 500 can be regarded as matching between the first terminal device 200 and the second terminal device 400, or matching between the first user and the second user.

[0091] The construction of the non-combustion-type flavor inhaler 100 is that explained above. In the present embodiment, the non-combustion-type flavor inhaler 100 has a communication function, and transmits/receives various kinds of information between it and the first terminal device 200.

[0092] The first terminal device 200 is a device which can input/output information between it and the first user, and perform communication with other devices. The first terminal device 200 transmits/receives various kinds of information between it and each of the non-combustion-type flavor inhaler 100 and the management device 300. The first terminal device 200 may be constructed as a smartphone, a tablet terminal, or a wearable terminal, or the like, for example.

[0093] The second terminal device 400 is a device which can input/output information between it and the second user, and perform communication with other devices. The second terminal device 400 transmits/receives various kinds of information between it and the management device 300. The second terminal device 400 may be constructed as a smartphone, a tablet terminal, or a wearable terminal, or the like, for example.

[0094] The power supplying device 500 is a device which can supply electric power to a different device. The power supplying device 500 is constructed as a mobile battery comprising a lithium-ion battery, for example.

[0095] The management device 300 is a device which controls an electric power supplying service that is to be provided to the non-combustion-type flavor inhaler 100. The management device 300 performs various processes such as matching and so on, based on information collected from each of the first terminal device 200 and the second terminal device 400.

< 2.2. Construction Examples >

[0096] In the following description, construction examples of respective devices will be explained with reference to Fig. 7 to Fig. 10. It should be reminded that, in the following description, components relating to the electric power supplying service will be explained, and explanation relating to other components will be omitted.

(1) Non-combustion-type Flavor Inhaler 100

[0097] Fig. 7 is a block diagram showing a construction example of the non-combustion-type flavor inhaler 100 according to the present embodiment. As shown in Fig. 7, the non-combustion-type flavor inhaler 100 comprises a battery 112, a sensor 113, a storage unit 114, a control unit 115, and a wireless communication unit 116.

- Battery 112

[0098] The construction of the battery 112 is that explained above.

- Sensor 113

[0099] The construction of the sensor 113 is that explained above.

- Wireless Communication Unit 116

[0100] The wireless communication unit 116 is a wireless interface having functions of a transmitting unit and a receiving unit for transmission/reception of information between the non-combustion-type flavor inhaler 100 and other devices. The wireless communication unit 116 performs wireless communication conforming to an arbitrarily selected standard of short-range wireless communication such as Bluetooth (a registered trademark) or LPWA (Low Power Wide Area), or the like. The wireless communication unit 116 transmits/receives various kinds of information relating to supply of electric power to the non-combustion-type flavor inhaler 100.

- Storage Unit 114

[0101] The construction of the storage unit 114 is that explained above.

- Control Unit 115

[0102] The control unit 115 functions as an arithmetic processing unit and a control device, and controls overall operation in the non-combustion-type flavor inhaler 100 according to various kinds of programs. The control unit 115 is realized, for example, by an electronic circuit such as a CPU (Central Processing Unit), a microprocessor, or the like. In this regard, the control unit 115 may comprise a ROM (Read Only Memory) for storing programs, operation parameters, and so on that are to be used, and a RAM (Random Access memory) for temporarily storing parameters and so on that are appropriately changed.

[0103] The non-combustion-type flavor inhaler 100 performs various kinds of processes, based on control by the control unit 115. For example, processes for charging the battery 112, detecting information by the sensor 113, transmitting/receiving information by the wireless communication unit 116, and storing and reading information by the storage unit 114 are examples of processes controlled by the control unit 115. Other processes performed by the non-combustion-type flavor inhaler 100, such as processes for inputting information to respective components, processes based on information outputted from respective components, and so on, are also controlled by the control unit 115. As shown in Fig. 7, the control unit 115 comprises a remaining-quantity-of-power parameter obtaining unit 141 and a judging unit 143. Details of the above respective components will be explained later in detail.

(2) First Terminal Device 200

[0104] Fig. 8 is a block diagram showing a construction example of a first terminal device 200 according to the present embodiment. As shown in Fig. 8, the first terminal device 200 comprises a wireless communication unit 210, an input/output unit 220, a position detecting unit 230, a storage unit 240, and a control unit 250.

- Wireless Communication Unit 210

[0105] The wireless communication unit 210 is a wireless interface having functions of a transmitting unit and a receiving unit for transmission/reception of information between the first terminal device 200 and other devices. The wireless communication unit 210 performs wireless communication conforming to an arbitrarily selected standard of short-range wireless communication such as Bluetooth or LPWA, or the like. Also, the wireless communication unit 210 communicates with the management device via wireless communication conforming to an arbitrarily selected standard of wireless communication such as wireless LAN (Local Area Network) or LTE (Long Term Evolution), or the like, and via a network such as a core network or the Internet, or the like. The wireless communication unit 210 transmits/receives various kinds of information relating to supply of electric power to the non-combustion-type flavor inhaler 100.

- Input/output Unit 220

[0106] The input/output unit 220 comprises an input unit for accepting input of information from the first user and an output unit for outputting information to the first user. The input unit comprises, for example, a button, a keyboard, a touch panel, or a microphone, or the like. The output unit comprises, for example, an image outputting device such as a display or the like, and a sound outputting device such as a speaker or the like. The input/output unit 200 outputs various kinds of information relating to supply of electric power to the non-combustion-type flavor inhaler 100, and receives inputs.

- Position Detecting Unit 230

[0107] The position detecting unit 230 detects position information representing an actual position of the first terminal device 200. The position detecting unit 230 receives, from a GNSS (Global Navigation Satellite System) satellite, a GNSS signal (for example, a GPS signal from a GPS (Global Positioning System) satellite) to detect position information comprising latitude, longitude, and altitude of the device, and outputs the detected position information. In this regard, the position detecting means 230 may detect position information by using an arbitrarily selected different technique. For example, the position detecting unit 230 may be that which detects position information based on transmission/reception between it and a Wi-Fi (a registered trademark) device, a mobile phone, a PHS device, a smartphone, or the like, or short-range wireless communication or the like.

- Storage Unit 240

[0108] The storage unit 240 is a storage medium for storing various kinds of information required for operation of the first terminal device 200. The storage unit 240 comprises, for example, a nonvolatile storage medium such as a flash memory or the like. The storage unit 240 stores various kinds of information relating to supply of electric power to the non-combustion-type flavor inhaler 100.

- Control Unit 250

[0109] The control unit 250 functions as an arithmetic processing unit and a control device, and controls overall operation in the first terminal device 200 according to various kinds of programs. The control unit 250 is realized, for example, by an electronic circuit such as a CPU, a microprocessor, or the like. In this regard, the control unit 250 may comprise a ROM for storing programs, operation parameters, and so on that are to be used, and a RAM for temporarily storing parameters and so on that are appropriately changed.

[0110] The first terminal device 200 performs various

kinds of processes, based on control by the control unit 250. For example, processes for transmitting/receiving information by the wireless communication unit 210, inputting/outputting information by the input/output unit 220, detecting a position by the position detecting unit 230, and storing and reading information by the storage unit 240 are examples of processes controlled by the control unit 250. Other processes performed by the first terminal device 200, such as processes for inputting information to respective components, processes based on information outputted from respective components, and so on, are also controlled by the control unit 250. As shown in Fig. 8, the control unit 250 comprises an information registering unit 251 and a charging control unit 253. The information registering unit 251 has a function to register information relating an electric power supplying service with the management device 300. The charging control unit 253 has a function to control various kinds of processes relating to charging of the non-combustion-type flavor inhaler 100 using the power supplying device 500. Details of the above respective components will be explained later in detail.

(3) Management Device 300

[0111] Fig. 9 is a block diagram showing a construction example of a management device 300 according to the present embodiment. As shown in Fig. 9, the management device 300 comprises a communication unit 310, a storage unit 320, and a control unit 330.

- Communication Unit 310

[0112] The communication unit 310 is a wireless/wired communication interface having functions of a transmitting unit and a receiving unit for transmission/reception of information between the management device 300 and other devices. Typically, the communication unit 310 transmits/receives information via a LAN or a telephone circuit, or the like. The communication unit 310 transmits/receives various kinds of information relating to supply of electric power to the non-combustion-type flavor inhaler 100.

- Storage Unit 320

[0113] The storage unit 320 is a storage medium for storing various kinds of information required for operation of the management device 300. The storage unit 320 comprises, for example, a nonvolatile storage medium such as a HDD (Hard Disk Drive) or a flash memory, or the like. The storage unit 320 stores various kinds of information relating to supply of electric power to the non-combustion-type flavor inhaler 100.

- Control Unit 330

[0114] The control unit 330 functions as an arithmetic processing unit and a control device, and controls overall operation in the management device 300 according to various kinds of programs. The control unit 330 is realized, for example, by an electronic circuit such as a CPU, a microprocessor, or the like. In this regard, the control unit 330 may comprise a ROM for storing programs, operation parameters, and so on that are to be used, and a RAM for temporarily storing parameters and so on that are appropriately changed.

[0115] The management device 300 performs various kinds of processes, based on control by the control unit 330. For example, processes for transmitting/receiving information by the communication unit 310, and storing and reading information by the storage unit 320 are examples of processes controlled by the control unit 330. Other processes performed by the management device 300, such as processes for inputting information to respective components, processes based on information outputted from respective components, and so on, are also controlled by the control unit 330. As shown in Fig. 9, the control unit 330 comprises a storage control unit 331 and a matching unit 333. The storage control unit 331 has a function to control storing of information in the storage unit 320 and reading of information from the storage unit 320. The matching unit 333 has a function to control various kinds of processes relating to matching between the first user and the second user. Details of the above respective components will be explained later in detail.

(4) Second Terminal Device 400

[0116] Fig. 10 is a block diagram showing a construction example of a second terminal device 400 according to the present embodiment. As shown in Fig. 10, the second terminal device 400 comprises a wireless communication unit 410, an input/output unit 420, a position detecting unit 430, a storage unit 440, and a control unit 450.

- Wireless Communication Unit 410

[0117] The wireless communication unit 410 is a wireless interface having functions of a transmitting unit and a receiving unit for transmission/reception of information between the second terminal device 400 and other devices. The wireless communication unit 410 communicates with the management device 300 via wireless LAN or wireless communication conforming to an arbitrarily selected standard of wireless communication such as LTE or the like, and via a network such as a core network or the Internet, or the like. The wireless communication unit 410 transmits/receives various kinds of information relating to supply of electric power to the non-combustion-type flavor inhaler 100.

- Input/output Unit 420

[0118] The input/output unit 420 comprises an input

unit for accepting input of information from the second user and an output unit for outputting information to the second user. The input unit comprises, for example, a button, a keyboard, a touch panel, or a microphone, or the like. The output unit comprises, for example, an image outputting device such as a display or the like, and a sound outputting device such as a speaker or the like. The input/output unit 420 outputs various kinds of information relating to supply of electric power to the non-combustion-type flavor inhaler 100, and receives inputs.

- Position Detecting Unit 430

[0119] The position detecting unit 430 detects position information of the second terminal device 400. The construction of the position detecting unit 430 is similar to that of the position detecting unit 230.

- Storage Unit 440

[0120] The storage unit 440 is a storage medium for storing various kinds of information required for operation of the second terminal device 400. The storage unit 440 comprises, for example, a nonvolatile storage medium such as a flash memory or the like. The storage unit 440 stores various kinds of information relating to supply of electric power to the non-combustion-type flavor inhaler 100.

- Control Unit 450

[0121] The control unit 450 functions as an arithmetic processing unit and a control device, and controls overall operation in the second terminal device 400 according to various kinds of programs. The control unit 450 is realized, for example, by an electronic circuit such as a CPU, a microprocessor, or the like. In this regard, the control unit 450 may comprise a ROM for storing programs, operation parameters, and so on that are to be used, and a RAM for temporarily storing parameters and so on that are appropriately changed.

[0122] The second terminal device 400 performs various kinds of processes, based on control by the control unit 450. For example, processes for transmitting/receiving information by the wireless communication unit 410, inputting/outputting information by the input/output unit 420, detecting a position by the position detecting unit 430, and storing and reading information by the storage unit 440 are examples of processes controlled by the control unit 450. Other processes performed by the second terminal device 400, such as processes for inputting information to respective components, processes based on information outputted from respective components, and so on, are also controlled by the control unit 450. As shown in Fig. 10, the control unit 450 comprises an information registering unit 451 and a supplying-power control unit 453. The information registering unit 451 has a function to register information relating an electric power supplying service with the management device 300. The supplying-power control unit 453 has a function to control various kinds of processes relating to supply of electric power from the power supplying device 500 to the non-combustion-type flavor inhaler 100. Details of the above respective components will be explained later in detail.

< 2.3. Technical Characteristics >

(1) Information Registration Performed in Advance

- Registration of Information Relating to First User

[0123] The first terminal device 200 (for example, the information registering unit 251) registers information relating to the first user with the management device 300. Further details thereof are that the first terminal device 200 transmits information relating to the first user to the management device 300, and the management device 300 (for example, the storage control unit 331 and the storage unit 320) stores the received information. In the following description, examples of information, that is registered, will be explained.

[0124] The management device 300 stores identification information of the non-combustion-type flavor inhaler 100 used by the first user, and identification information of the first terminal device 200 used by the first user. The identification information of the non-combustion-type flavor inhaler 100 may be identification information uniquely assigned to each non-combustion-type flavor inhaler 100, and may further include the type of the non-combustion-type flavor inhaler 100. Further, the management device 300 stores profile information of the first user. The profile information is attribute information such as age, gender, and so on. The management device 300 associates the above information with the identification information of the first user and stores it.

- Registration of Information Relating to Second User

[0125] The second terminal device 400 (for example, the information registering unit 451) registers information relating to the second user with the management device 300. Further details thereof are that the second terminal device 400 transmits information relating to the second user to the management device 300, and the management device 300 (for example, the storage control unit 331 and the storage unit 320) stores the received information. In the following description, examples of information, that is registered, will be explained.

[0126] The management device 300 stores identification information of the second terminal device 400 used by the second user, and identification information of the power supplying device 500 used by the second user. The management device 300 also stores profile information of the second user. The management device 300 associates the above information with the identification

information of the second user and stores it.

[0127] The management device 300 may associate position information of the power supplying device 500 with the second-user's identification information that has been associated with the power supplying device 500, and store it. The position information of the power supplying device 500 may be position information that represents an actual position of the power supplying device 500. The position information representing an actual position of the power supplying device 500 may be detected, in behalf thereof, by the position detecting unit 430 in the second terminal device 400. Further, the position information of the power supplying device 500 may be position information representing a position different from a position of the power supplying device 500. A position different from a position of the power supplying device 500 may be, for example, a position of a building which is positioned near the power supplying device 500 and can be recognized as a landmark or a position convenient for the second user to join with others, or the like. Such a position is inputted to the second terminal device 400 by the second user, for example. The position information of the power supplying device 500, that has been stored in the management device 300, is presented to the first user, during the process of matching, or for supporting joining of the first user and the second user. In this regard, in the case that position information representing a position different from a position of the power supplying device 500 is stored, it becomes possible to prevent unintentional exhibition of an actual position of the second user to other users, and facilitate joining of the first user and the second user together.

[0128] In this regard, since the second terminal device 400 and the power supplying device 500 are carried by the second user, it is regarded that the position of the second terminal device 400, the position of the power supplying device 500, and the position of the second user are synonymous with each other. Similarly, it is regarded that the position of the non-combustion-type flavor inhaler 100, the position of the first terminal device 200, and the position of the first user are synonymous with each other.

[0129] The management device 300 associates status information relating to the quantity of electric power that can be supplied from the power supplying device 500 with identification information of the second user associated with the power supplying device 500, and stores it. The status information is information representing status relating to power-supplying-ability of the power supplying device 500, such as the remaining quantity of electric power in the power supplying device 500, the speed of supplying of electric power, type information representing the type of the non-combustion-type flavor inhaler 100 to which electric power can be suppled, and the presence/absence of the connecting device 160 used for supplying power, and so on. As a result that the status information is stored, it becomes possible to perform matching corresponding to the power-supplying-ability of the power supplying device 500.

(2) Transmission of Help Information by Non-combustion-type Flavor Inhaler 100

[0130] The non-combustion-type flavor inhaler 100 transmits, to the first terminal device 200, help information (this corresponds to the first information) that is information relating to the remaining quantity of electric power in the battery 112. As a result, execution of supplying of electric power to the non-combustion-type flavor inhaler 100 is triggered.

- Acquisition of Remaining-Quantity-of-Power Parameter

[0131] The non-combustion-type flavor inhaler 100 (for example, the remaining-quantity-of-power parameter obtaining unit 141) obtains a remaining-quantity-of-power parameter representing the remaining quantity of electric power in the battery 112. The remaining-quantity-of-power parameter is information that directly or indirectly represents the remaining quantity of electric power, such as the voltage of the battery 112, the accumulated number of times of puffs, or the time elapsed during the state that the power source is being turned on, or the like, for example. For example, the non-combustion-type flavor inhaler 100 obtains voltage information from the battery 112, and obtains the accumulated number of times of puffs based on result of detection by a wind pressure sensor.

- Condition Judgment

[0132] Next, the non-combustion-type flavor inhaler 100 (for example, the judging unit 143) judges whether the remaining-quantity-of-power parameter of the battery 112 satisfies a predetermined condition. As a result, if it is judged that the remaining-quantity-of-power parameter satisfies the predetermined condition, the non-combustion-type flavor inhaler 100 transmits help information to the first terminal device 200. On the other hand, if it is judged that the remaining-quantity-of-power parameter does not satisfy the predetermined condition, the non-combustion-type flavor inhaler 100 does not transmit help information to the first terminal device 200. The help information comprises, for example, identification information of the non-combustion-type flavor inhaler 100, or various kinds of information relating to the remaining quantity of electric power, such as judgment result representing whether the remaining-quantity-of-power parameter satisfies the predetermined condition, and so on. Since the help information is transmitted only when the remaining-quantity-of-power parameter satisfies the predetermined condition, it is possible to suppress electric power consumed for wireless communication.

[0133] The state that the predetermined condition is being satisfied includes a state that the remaining-quantity-of-power parameter is showing a state that the re-

maining quantity of electric power (for example, the voltage) in the battery 112 is less than a predetermined threshold value. In other words, in the case that the remaining-quantity-of-power parameter shows a state that the remaining quantity of electric power in the battery 112 is less than a predetermined threshold value, the non-combustion-type flavor inhaler 100 judges that the predetermined condition has been satisfied, and, if not, judges that the predetermined condition has not been satisfied. That is, only when the remaining quantity of electric power is less than the predetermined threshold value, execution of supplying of electric power is triggered. Thus, it becomes possible to trigger execution of supplying of electric power at appropriate timing for preventing lowering of the degree of usability due to lowering of the remaining quantity of electric power in the non-combustion-type flavor inhaler 100.

[0134] The predetermined threshold value may be a threshold value used for judging whether electric power sufficient for fully consuming at least one unused atomizing unit 120 remains in the battery 112. The electric power sufficient for fully consuming an unused atomizing unit 120 is, for example, electric power calculated by adding a predetermined offset value to electric power required in a period from a point in time when the unused atomizing unit 120 is attached to the electric unit 110 and puff action is started to a point in time when it becomes unable to generate aerosol even if puff action is performed. As a result that a threshold value such as that explained above is set, it becomes possible to trigger execution of supplying of electric power before the timing when the degree of usability decreases actually. In this regard, regarding the non-combustion-type flavor inhaler 100B, the predetermined threshold value may be a threshold value used for judging whether electric power sufficient for fully consuming an unused smoking article 180 remains in the battery 112.

[0135] The predetermined threshold value may be a threshold value used for judging whether electric power sufficient for fully consuming at least one unused flavor source 131 remains in the battery 112. The electric power sufficient for fully consuming an unused flavor source 131 is, for example, electric power calculated by adding a predetermined offset value to electric power required from a point in time when the unused capsule unit 130 is attached and puff action is started to a point in time when it becomes unable to such the flavor source any more even if puff action is performed. As a result that a threshold value such as that explained above is set, it becomes possible to trigger execution of supplying of electric power before the timing when the degree of usability decreases actually.

[0136] The predetermined threshold value may be a threshold value used for judging whether electric power corresponding to a predetermined number of times of aerosol generation remains in the battery 112. If the remaining quantity of electric power is equal to or larger than the threshold value, a user can perform puff actions corresponding, at least, to the predetermined number of times of aerosol generation. As a result that a threshold value such as that explained above is set, it becomes possible to trigger execution of supplying of electric power before the timing when the degree of usability decreases actually, i.e., before a predetermined number of times of aerosol generation is completed. Setting of the predetermined number of times of aerosol generation may be performed by a user. In such a case, it is possible to satisfy a user's request such as "It is desirable to keep electric power that allows at least N times of puff actions."

[0137] The predetermined threshold value may be a threshold value used for judging whether supply of electric power to the atomizing part 122 is limited. If the remaining quantity of electric power is equal to or larger than the threshold value, supply of electric power to the atomizing part 122 is not limited, and the first user can suck the flavor by performing puff action. If the remaining quantity of electric power is less than the threshold value, supply of electric power to the atomizing part 122 is limited, and it becomes difficult for the first user to suck the flavor by performing puff action. As a result that a threshold value such as that explained above is set, it becomes possible to trigger execution of supplying of electric power before the timing when the degree of usability decreases actually.

- Judgment Timing

[0138] It is possible to consider various timing for performing judgment as to whether the remaining-quantity-of-power parameter satisfies the above predetermined condition.

[0139] The non-combustion-type flavor inhaler 100 may periodically judge whether the remaining-quantity-of-power parameter satisfies a predetermined condition. For example, the non-combustion-type flavor inhaler 100 may perform judgment at timing when the time elapsed since the time when the last judgment was performed has reached a predetermined time, or timing when the number of times of puff actions performed since the time when the last judgment was performed has reached a predetermined number of times. In the above case, the non-combustion-type flavor inhaler 100 periodically monitors the remaining quantity of electric power, and lowering of the remaining quantity of electric power can be prevented thereby.

[0140] The non-combustion-type flavor inhaler 100 may start judgment to judge whether the remaining-quantity-of-power parameter satisfies a predetermined condition, by using, as a trigger thereof, an event that the atomizing unit 120 is attached/detached to/from the electric unit 110 is detected by an attachment/detachment sensor. Attachment/detachment of the atomizing unit 120 is often performed before starting of puff action by the first user. Thus, by using an event of detection of attachment/detachment of the atomizing unit 120 as a trigger for starting judgment, it becomes possible to trigger ex-

ecution of supplying of electric power, before the first user feels, as a result of an event that the flavor cannot be sucked even if a puff action is performed, lowering of the remaining quantity of electric power. For the reason similar to that explained above, it is possible to use an event that the power source of the non-combustion-type flavor inhaler 100 is turned on as a trigger for starting judgment to judge whether the remaining-quantity-of-power parameter satisfies a predetermined condition. Further, regarding the non-combustion-type flavor inhaler 100B, the combustion-type flavor inhaler 100B may use an event that insertion of the smoking article 180 into the non-combustion-type flavor inhaler 100 is detected as a trigger for starting judgment to judge whether the remaining-quantity-of-power parameter satisfies a predetermined condition.

[0141] The non-combustion-type flavor inhaler 100 may start judgment to judge whether the remaining-quantity-of-power parameter satisfies a predetermined condition, by using, as a trigger thereof, an event that authentication of the atomizing unit 120 attached to the electric unit 110 is completed successfully. Authentication is performed for obtaining identification information of the atomizing unit 120, checking whether the atomizing unit 120 is a genuine product, and so on. Authentication may be performed based on a resistance value at the time when current is applied to the atomizing unit 120, a two-dimensional code such as a barcode or the like added to the atomizing unit 120, or result of reading by magnetic sensor or an optical sensor. Similarly, the non-combustion-type flavor inhaler 100 may start judgment to judge whether the remaining-quantity-of-power parameter satisfies a predetermined condition, by using, as a trigger thereof, an event that authentication of the capsule unit 130 attached to the atomizing unit 120 is completed successfully. Regarding the non-combustion-type flavor inhaler 100B, the combustion-type flavor inhaler 100B may use an event that authentication of the smoking article 180 inserted into the non-combustion-type flavor inhaler 100 is completed successfully as a trigger for starting judgment to judge whether the remaining-quantity-of-power parameter satisfies a predetermined condition.

[0142] Further, based on identification information of the atomizing unit 120 with respect to which authentication has been completed successfully, the non-combustion-type flavor inhaler 100 may set a predetermined threshold value for the above condition judgment. In other words, the non-combustion-type flavor inhaler 100 may set a different predetermined threshold value for a different atomizing unit 120 having different identification information. As a result, execution of supplying of electric power can be triggered at timing appropriate for each type of atomizing unit 120, in the case that power consumption efficiency of each type of atomizing unit 120 is different from that of other types of atomizing units 120. For the reason similar to that explained above, the non-combustion-type flavor inhaler 100 may set a predetermined threshold value for the above condition judgment, based on identification information of the capsule unit 130 with respect to which authentication has been completed successfully. Further, regarding the non-combustion-type flavor inhaler 100B, the non-combustion-type flavor inhaler 100B may set a predetermined threshold value for the above conditionjudgment, based on identification information of the smoking article 180 with respect to which authentication has been completed successfully.

[0143] The non-combustion-type flavor inhaler 100 may start judgment to judge whether the remaining-quantity-of-power parameter satisfies a predetermined condition, by using, as a trigger thereof, an event that puff action performed by the first user is detected by a wind pressure sensor. As a result, it becomes possible to trigger execution of supplying of electric power at timing when the first user just attempts starting of a puff action.

[0144] Further, a threshold value relating to judgment timing may be used as the above predetermined threshold value. For example, in the judgment that uses, as a trigger thereof, an event that attachment/detachment of the atomizing unit 120 to the electric unit 110 is detected, a threshold value for judging whether electric power sufficient for fully consuming at least one unused atomizing unit 120 of flavor source 131 remains in the battery 112 is used. Regarding the non-combustion-type flavor inhaler 100B, in the judgment that uses, as a trigger thereof, an event that insertion of the smoking article 180 into the non-combustion-type flavor inhaler 100 is detected, a threshold value for judging whether electric power sufficient for fully consuming at least one unused smoking article 180 remains in the battery 112 is used. Further, in the judgment that uses, as a trigger thereof, an event that a puff action by the first user is detected, a threshold value for judging whether supply of electric power to the atomizing part 122 is to be limited is used. By using the above predetermined threshold values relating to judgment timing as explained above, supplying of electric power, that fits the first user's needs, can be realized.

(3) Transmission of Help Information by First Terminal Device 200

[0145] The first terminal device 200 (for example, the charging control unit 253), after receiving help information from the non-combustion-type flavor inhaler 100, transmits help information (this corresponds to the second information) corresponding to the received information to the management device 300.

- Contents of Help Information

[0146] Help information received by the first terminal device 100 and help information transmitted from the first terminal device 100 may be the same as or different from each other. For example, the first terminal device 100 adds predetermined information to the received help information and/or deletes predetermined information from

the received help information, and transmits the help information. In the following description, an example of information included in help information, that is to be transmitted by the first terminal device 20, will be explained.

- Identification Information of User

[0147] The help information comprises identification information (i.e., a user ID) of the first user. The help information may comprise, together with the identification information of the first user or in place thereof, identification information of the non-combustion-type flavor inhaler 100 or identification information of the first terminal device 200.

- Position Information

[0148] The help information comprises positon information of the non-combustion-type flavor inhaler 100 (specifically, the electric unit 110). As a result, it becomes possible to perform matching based on position information, and notify the second user of the position information.

[0149] The position information of the non-combustion-type flavor inhaler 100 may be information representing an actual position of the non-combustion-type flavor inhaler 100. In this regard, the position information of the non-combustion-type flavor inhaler 100 may be detected, in behalf thereof, by the position detecting unit 230 in the first terminal device 200. That is, the help information may comprise, as position information of the non-combustion-type flavor inhaler 100, position information detected by the position detecting unit 230 in the first terminal device 200. In the above case, since the non-combustion-type flavor inhaler 100 is not required to detect the position information by itself, it can suppress electric power consumption thereof.

[0150] The position information of the non-combustion-type flavor inhaler 100 may be position information representing a position different from a position of the non-combustion-type flavor inhaler 100. A position different from a position of the non-combustion-type flavor inhaler 100 is, for example, a position of a building which is positioned near the non-combustion-type flavor inhaler 100 and can be recognized as a landmark or a position convenient for the first user to join with others, or the like. Such an optionally selected position is inputted to the first terminal device 200 by the first user, for example. The position information of the non-combustion-type flavor inhaler 100 is presented to the second user, during the process of matching, or for supporting joining of the first user and the second user. In this regard, in the case that position information representing a position different from a position of the non-combustion-type flavor inhaler 100 is included in the help information, it becomes possible to prevent unintentional exhibition of an actual position of the first user to other users, and facilitate joining of the first user and the second user together.

- Registration Information of Electric Power Supplying Service

[0151] The help information may comprise first user's registration information of an electric power supplying service. Thus, non-combustion-type flavor inhaler 100 can receive supply of electric power corresponding to the first user's registration information of an electric power supplying service. It can be mentioned that the registration information of an electric power supplying service is, for example, information representing contents of an electric power supplying service that the first user can receive, specifically, an upper limit of the quantity of electric power that is supplied per single power supplying action, an upper limit of the number of times of charging actions per unit period, the distance from the power supplying device 500 which can be an object of matching, and so on. In this regard, in the case that a fee corresponding to the number of times of charging actions per unit period is to be charged, setting of the upper limit of the number of times of charging actions per unit period is effective for preventing occurrence of a case that a large amount of the fee is incurred. The unit period is a day, a week, a month, or the like, for example. The registration information of an electric power supplying service is stored in the first terminal device 200, for example.

[0152] It should be reminded that the registration information of an electric power supplying service may be stored in the management device 300 in advance, and, in such a case, the above information may not be included in the help information.

- Information Designating Quantity of Supply of Electric Power

[0153] The help information may comprise quantity-of-supply-of-power designating information for designating the quantity of electric power supplied to the non-combustion-type flavor inhaler 100. For example the quantity-of-supply-of-power designating information includes information that designates the quantity of supply of electric power as a ratio based on the number of times of generation of aerosol, the length of time of supply of electric power, or the capacity of the battery 112. For example, designation of the quantity of supply of electric power based on the number of times of generation of aerosol may designate the number of times of puffs that is sufficient for fully consuming at least one unused atomizing unit 120, the number of times of puffs that is sufficient for fully consuming at least one unused capsule unit 130, or a predetermined number of times of puffs. Further, regarding the non-combustion-type flavor inhaler 100B, designation of the quantity of supply of electric power based on the number of times of generation of aerosol may designate, for example, the number of times of puffs that is sufficient for fully consuming at least one unused smoking article 180, or a predetermined number of times of puffs. As a result of designation of the quantity of supply

of electric power such as that explained above, it becomes possible to realize supplying of electric power that supplies a quantity of electric power desired by the first user.

[0154] It should be reminded that the quantity-of-supply-of-power designating information may be stored in the management device 300 in advance, and, in such a case, the above information may not be included in the help information.

- Information Designating Profile

[0155] The help information may comprise profile designating information for designating profile information of a second user who should be designated as a destination of the help information. For example, the profile designating information comprises information for designating that a second user who has the same gender as that of and is in the same generation as that of the first user is to be specified. As a result that profile information is designated as explained above, it becomes possible to prevent an event that the first user meets a second user who has profile information that is not expected by the first user from occurring.

[0156] It should be reminded that the profile designating information may be stored in the management device 300 in advance, and, in such a case, the help information may not include the profile designating information.

- Decision-making by First User

[0157] The non-combustion-type flavor inhaler 100 may transmit, after decision-making by the first user, help information. In such a case, the non-combustion-type flavor inhaler 100 outputs information that asks the first user to make a decision as to whether help information is to be transmitted, and receives an input from the first user. The non-combustion-type flavor inhaler 100 transmits the help information, only when information instructing transmission of the help information is inputted thereto. In such a case, since the help information is transmitted after decision-making by the first user, the first user can receive supply of electric power when it is convenient for the first user.

(4) Matching

[0158] The management device 300 (for example, the matching unit 333) performs matching between a non-combustion-type flavor inhaler 100 in which the remaining quantity of electric power has been lowered and a power supplying device 500 which can supply electric power to the non-combustion-type flavor inhaler 100.

[0159] Specifically, the management device 300, after receiving help information, specifies a power supplying device 500 which can supply electric power to the non-combustion-type flavor inhaler 100 relating to the help information. In this regard, in matching, plural power supplying devices 500 may be selected in relation to a single non-combustion-type flavor inhaler 100. Similarly, in matching, plural non-combustion-type flavor inhalers 100 may be selected in relation to a single power supplying device 500.

- Matching Method

[0160] In the following description, an example of a matching method will be explained. In this regard, the matching methods explained below may be used after combing them appropriately.

- Matching Based on Distance

[0161] The matching unit 333 may perform matching based on distance from the first user. For example, the matching unit 333 selects a power supplying device 500 if positional relationship between the power supplying device 500 and the non-combustion-type flavor inhaler 100 is predetermined positional relationship. The matter that there is predetermined positional relationship between the non-combustion-type flavor inhaler 100 and the power supplying device 500 may mean that the distance between positions of the above devices are in a predetermined distance. The predetermined distance in the above case may be a distance in a straight line, or a moving distance that takes the shape of a road and so on into consideration, or may be that including a distance in a height direction. Further, the matter that there is predetermined positional relationship between the non-combustion-type flavor inhaler 100 and the power supplying device 500 may mean that these devices are positioned in the same building, or these devices are positioned in the same geographic area, or the like. By performing matching based on positional relationship such as that explained above, it becomes possible to match a power supplying device 500 which is associated with a second user and is close to the first user in terms of distance that allows the first user to join the second user faster and receive supply of electric power.

- Matching Based on Registration Information of Electric Power Supplying Service

[0162] The matching unit 333 may perform matching based on registration information of an electric power supplying service. For example, only a power supplying device 500, with respect to which the distance from the position thereof to a position of the non-combustion-type flavor inhaler 100 is within a distance that is defined in the registration information of an electric power supplying service as that wherein matching is allowed, is selected as an object of matching in the matching unit 333. As a result, the first user can receive an appropriate electric power supplying service according to the registration information of the electric power supplying service.

- Matching Based on Status Information

[0163] The matching unit 333 may perform matching based on status information of the power supplying device 500. For example, the matching unit 333 specifies a power supplying device 500 which has a remaining quantity of electric power that is equal to or greater than the quantity of supply of electric power defined in quantity-of-supply-of-power designating information. Further, for example, the matching unit 333 checks the status information and the type information of the non-combustion-type flavor inhaler 100 that is an object of matching, and specifies a power supplying device 500 that includes, as a type of a non-combustion-type flavor inhaler 100 to which electric power can be supplied, the non-combustion-type flavor inhaler 100 that is an object of matching. As a result, the management device 300 can specify a power supplying device 500 which has an appropriate electric power supplying ability.

- Matching Based on Profile Information

[0164] The matching unit 333 may perform matching based on profile information of a first user and/or a second user. For example, the matching unit 333 specifies a second user who has profile information designated by profile designating information from a first user. As a result, it becomes possible to prevent an event that the first user meets a second user who has profile information that is not expected by the first user from occurring. Similarly, in the case that profile designating information from a second user has been registered, the matching unit 333 specifies a second user who designates, by profile designating information, profile information of a first user. As a result, it becomes possible to prevent an event that the second user meets a first user who has profile information that is not expected by the second user from occurring.

- Transmission of Help Information

[0165] The management device 300 (for example, the matching unit 333) sets, as an object, a matched power supplying device 500 and transmits help information (the third information). For example, the management device 300 transmits help information to a second terminal device 400 associated with the matched power supplying device 500.

[0166] Help information received by the management device 300 and help information transmitted from the management device 300 may be the same as or different from each other. For example, the management device 300 adds predetermined information to the received help information and/or deletes predetermined information from the received help information, and transmits the help information. The help information transmitted from the management device 300 includes, at least, position information of a non-combustion-type flavor inhaler 100. In addition, the help information transmitted from the management device 300 may include profile information of a first user and so on.

(5) Decision-making as to Whether Supplying of Electric Power is to be Performed

[0167] The second terminal device 400 (for example, the supplying-power control unit 453) may receive a result of decision-making that is performed by a second user associated with the matched power supplying device 500 for deciding whether supplying of electric power is to be performed. Specifically, the second terminal device 400 outputs, to the second user, information based on received help information, and receives a result of decision-making regarding whether supplying of electric power to the matched non-combustion-type flavor inhaler 100 is to be performed.

[0168] For example, the second terminal device 400 outputs information representing a state that it is being requested to supply electric power to the matched non-combustion-type flavor inhaler 100. As a result, the second user can recognize that the first user is requesting supply of electric power from the second user.

[0169] For example, the second terminal device 400 outputs information relating to a position of the matched non-combustion-type flavor inhaler 100. In this regard, the information relating to a position of the matched non-combustion-type flavor inhaler 100 may be position information of the non-combustion-type flavor inhaler 100, or information representing relative positional relationship between the non-combustion-type flavor inhaler 100 and the power supplying device 500 (for example, a distance and/or a direction). As a result, the second user can perform decision-making as to whether supplying of electric power is to be performed, by taking a moving distance required for joining of the second user and the first user and so on into consideration.

[0170] In addition, the second terminal device 400 may output profile information of the first user associated with the matched non-combustion-type flavor inhaler 100 and various kinds of information relating to supply of electric power such as quantity-of-supply-of-electric-power designating information and so on. As a result, a contribution to the decision-making performed by the second user can be made.

[0171] For example, the second terminal device 400 outputs information that asks the second user to perform decision-making as to whether supplying of electric power to the matched non-combustion-type flavor inhaler 100 is to be performed. Thereafter, the second terminal device 400 replies, to the management device 300, information that is inputted by the second user and represents a result of decision-making as to whether supplying of electric power is to be performed. In this manner, the second user can select whether supplying of electric power is to be performed, even at the point in time after matching.

[0172] In the following description, an example of information outputted by the second terminal device 400 will be explained with reference to Fig. 11.

[0173] Fig. 11 is a figure showing an example of a UI screen displayed by the second terminal device 400 according to the present embodiment. A UI screen 600 shown in Fig. 11 is an example of a UI screen that is used for performing decision-making with respect to whether supplying of electric power to a matched non-combustion-type flavor inhaler 100 is to be performed. The UI screen 600 comprises a UI element 601 in which information representing positions of the first user and the second user is arranged on a map around the second user. Specifically, in the UI element 601, an icon 602 representing the second user is arranged on a position, that corresponds to the position of the second user, on the map. Further, in the UI element 601, icons 603A and 603B representing two first users are arranged on positions, that correspond to the positions of the respective first users, on the map. After the icon 603A or the icon 603B is selected, an UI element 604, which comprises identification information, position information, and profile information of the corresponding first user, is outputted. By referring to the UI element 604, the second user is made to be able to select a first user whose position is closer to the second user, prevent an event that the second user meets a first user who has profile information that is not expected by the second user from occurring, and so on. A UI element 605 comprises choices as to whether supplying of electric power to the non-combustion-type flavor inhaler 100 of the first user corresponding to the selected icon 603 is to be performed, and the second user can select one of the choices.

[0174] In this regard, in the case that there are plural power supplying devices 500 that have been matched and to each of which help information has been transmitted, and that inputting of a result of decision-making indicating an intention to supply electric power is performed in one of the above plural power supplying devices 500, the management device 300 invalidates help information relating to the other power supplying devices. For example, the management device 300 transmits, to each second terminal device 400 that is not the sender of the decision-making result indicating an intention to supply electric power, information representing an event that the help information has been invalidated. For example, each of the second terminal devices 400, after receiving the above information, stops displaying of the UI screen used for making a decision as to whether supplying of electric power is to be performed. As a result, occurrence of unnecessary movement, such as movement wherein plural second users move to a position of a single first user, can be prevented.

(6) Support of Joining

[0175] The management device 300 (for example, the matching unit 333) supports joining of a first user and a second user who has been matched with the first user and has made a decision to supply electric power. For example the management device 300 transmits, to each of the first terminal device 200 and the second terminal device 400, a joining instruction that includes information instructing joining of the first user and the second user.

[0176] The joining instruction includes position information of a joining point. The joining point may be a position of the first user, and, in such a case, the second user is instructed to move. The joining point may be a position of the second user, and, in such a case, the first user is instructed to move. The joining point may be a middle point between a position of the first user and a position of the second user, and, in such a case, the first user and the second user are instructed to move.

[0177] The first terminal device 200 (for example, the charging control unit 253) and the second terminal device 400 (for example the supplying-power control unit 453), after receiving the joining instruction, output information, that is based on the received joining instruction, to the first user and the second user. For example, the first terminal device 200 and the second terminal device 400 output position information included in the joining instruction and guidance of routes to the position represented by the position information. As a result, the first user and the second user are made to be able to join together easily. After successful joining of the first user and the second user, supplying of electric power to the non-combustion-type flavor inhaler 100 by the power supplying device 500 is performed.

(7) Giving Reward

[0178] A reward may be given to a second user associated with a power supplying device 500 which supplied electric power to a non-combustion-type flavor inhaler 100. For example, the reward is points defined in an electric power supplying service, or the like.

[0179] For example, the first terminal device 200 (for example, the charging control unit 253) outputs information, that requests the first user that the first user input a reward that to be given to the second user associated with the power supplying device 500 which has supplied electric power to the non-combustion-type flavor inhaler 100, and receives an input of the reward. The first terminal device 200 transmits, to the management device 300, information representing the reward inputted by the first user. Thereafter, the management device 300 performs a process for giving the reward, that was inputted by the first user, to the second user. Thus, the second user can have strong motivation to supply electric power to a non-combustion-type flavor inhaler 100. Inputting of a reward may be performed after completion of supply of electric power or before transmission of help information. In the latter case, for example, it is possible to make the second user have more strong motivation to supply electric power, by designating a reward in such a manner that the reward becomes higher as the degree of urgency be-

comes higher.

(8) Flow of Process

[0180] Fig. 12 is a sequence diagram showing an example of a flow of a power supplying process performed by the system 1 according to the present embodiment. A non-combustion-type flavor inhaler 100, a first terminal device 200, a management device 300, a second terminal device 400, and a power supplying device 500 relate to the present sequence. It is supposed that registration of information relating to the first user and the second user has been completed before the process represented by the present sequence is performed.

[0181] As shown in Fig. 12, first, the non-combustion-type flavor inhaler 100 obtains a remaining-quantity-of-power parameter of the battery 112 (step S102). Next, the non-combustion-type flavor inhaler 100 judges whether the remaining-quantity-of-power parameter satisfies a predetermined condition (step S104). If it is judged that the remaining-quantity-of-power parameter satisfies a predetermined condition, the non-combustion-type flavor inhaler 100 transmits help information to the first terminal device 200 (step S106).

[0182] Next, the first terminal device 200 displays a UI screen that is used for making a decision as to whether the help information is to be transmitted, and receives an input from the first user (step S108). The first terminal device 200, in the case that information representing an instruction to transmit the help information is inputted thereto, transmits the help information to the management device 300 (step S110).

[0183] The management device 300, after receiving the help information, performs matching between the non-combustion-type flavor inhaler 100 and a power supplying device 500 (step S112). Next, the management device 300 transmits the help information to one or more second terminal devices 400 associated with corresponding one or more matched power supplying devices 500 (step S114).

[0184] Each second terminal device 400, which has received the help information, displays a UI screen that is used for making a decision as to whether supplying of electric power to the matched non-combustion-type flavor inhaler 100 is to be performed, wherein an example of the UI screen is shown in Fig. 11; and receives an input of a result of decision-making (step S116). Next, the second terminal device 400 transmits, to the management device 300, information representing the result of decision-making (step S118).

[0185] The management device 300, in the case that it has received the result of decision-making indicating an intention to supply electric power, transmits a joining instruction to each of the first terminal device 200 which is the sender of the help information and the second terminal device 400 which is the sender of the result of decision-making (step S120). After the first user and the second user are successfully joined together based on the joining instruction, supplying of electric power from the power supplying unit 500 to the non-combustion-type flavor inhaler 100 is performed (step S122). In this regard, the management device 300, in the case that it has received the result of decision-making indicating an intention to supply electric power, transmits information, that invalidates the help information, to the second terminal devices 400 other than the sender of the above result of decision-making.

[0186] Next, the first terminal device 200 displays a UI screen that is used for inputting a reward, and receives an input of the reward that is to be given to the second user (step S124). Thereafter, the first terminal device 200 transmits, to the management device 300, information representing the reward inputted by the first user (step S126). Thereafter, the management device 300 performs a process for giving, to the second user, the reward designated by the first user.

< 2.4. Modified Examples >

(1) First Modified Example

[0187] In the above description, explanation is provided with reference to Fig. 11, i.e., an example wherein a second user is requested to make a decision in response to a result of matching is explained; however, the present invention is not limited to the above example. For example, a first user may be requested to make a decision for responding to a matching result.

[0188] Specifically, first, the management device 300 (for example, the matching unit 333) transmits information representing a matching result to a first terminal device 200 which is the sender of help information. In this regard, the information representing a matching result comprises position information of a matched power supplying device 500, profile information of a second user who is the user, and so on.

[0189] Next, the first terminal device 200 (for example, the charging control unit 253) accepts a result of decision-making that was performed by the first user and relates to selection of a destination of the help information. Specifically, the first terminal device 200 outputs information, that is based on the received matching result, to be directed to the first user, and accepts selection of a destination of the help information.

[0190] For example, the first terminal device 200 outputs information that notifies that the matched power supplying device 500 can supply electric power. As a result, the first user can recognize that supply of electric power can be received.

[0191] For example, the first terminal device 200 outputs information relating to a position of a matched power supplying device 500. In this regard, the information relating to a position of a matched power supplying device 500 may be position information of the power supplying device 500, or information representing relative positional relationship between the non-combustion-type flavor

inhaler 100 and the power supplying device 500 (for example, a distance and/or a direction). As a result, the first user can perform decision-making as to whether the second user is determined to be a candidate of an electric power supplying source, by taking a moving distance required for joining of the first user and the second user and so on into consideration.

[0192] In addition, the first terminal device 200 may output profile information of the second user associated with the matched power supplying device 500 and various kinds of information relating to supply of electric power such as status information of the power supplying device 500 and so on. As a result, a contribution to the decision-making performed by the first user can be made.

[0193] For example, the first terminal device 200 outputs information that asks the first user to perform decision-making as to whether the matched power supplying device 500 is to be selected as a destination of help information. Thereafter, the first terminal device 200 replies, to the management device 300, information that is inputted by the first user and represents a result of selection of a destination of the help information. The management device 300 transmits the help information in such a manner that the destination of transmission is limited to the second terminal device 200 associated with the power supplying device 500 which is selected by the first user as the destination of the help information. In this manner, the first user can select a destination of help information, by referring to a matching result.

[0194] In the following description, an example of information outputted by the first terminal device 200 will be explained with reference to Fig. 13. Next, a flow of a process in the present modified example will be explained with reference to Fig. 14.

[0195] Fig. 13 is a figure showing an example of a UI screen displayed by a first terminal device 200 according to a first modified example. A UI screen 610 shown in Fig. 13 is an example of a UI screen that is used for performing selection of a destination of help information. The UI screen 610 comprises a UI element 611 in which information representing positions of the first user and the second user is arranged on a map around the first user. Specifically, in the UI element 611, an icon 612 representing the first user is arranged on a position, that corresponds to the position of the first user, on the map. Further, in the UI element 611, icons 613A and 613B representing two second users are arranged on positions, that correspond to the positions of the respective second users, on the map. After the icon 613A or the icon 613B is selected, an UI element 614, which comprises identification information, position information, and profile information of the corresponding second user, is outputted. By referring to the UI element 614, the first user is made to be able to select a second user whose position is closer to the first user, prevent an event that the first user meets a second user who has profile information that is not expected by the first user from occurring, and so on. A UI element 615 comprises choices as to whether the second terminal device 400 of the second user corresponding to the selected icon 613 is determined to be a destination of the help information, and the first user can select one of the choices. In this regard the first user is allowed to select plural second users as destinations of transmission of help information.

[0196] Fig. 14 is a sequence diagram showing an example of a flow of a power supplying process performed by a system 1 according to the first modified example. A non-combustion-type flavor inhaler 100, a first terminal device 200, a management device 300, a second terminal device 400, and a power supplying device 500 relate to the present sequence. It is supposed that registration of information relating to the first user and the second user has been completed before the process represented by the present sequence is performed.

[0197] The processes in steps S202-S212 are similar to the processes in steps S102-S112 explained with reference to Fig. 12. After step S212, the management device 300 transmits, to the first terminal device 200 which is the sender of the help information, information representing a result of matching (step S214). Next, the first terminal device 200 displays a UI screen that is used for selecting a destination of the help information, wherein an example of the UI screen is shown in Fig. 13; and receives an input of a result of selection of a destination of the help information (step S216). Next, the first terminal device 200 transmits, to the management device 300, information representing the result of selection (step S218). Next, the management device 300 transmits the help information to the second terminal device 400 associated with the power supplying device 500 selected as the destination of the help information (step S220). The processes in steps S222-S232 following the above step are similar to the processes in steps S116-S126 explained with reference to Fig. 12.

(2) Second Modified Example

[0198] In the above description, an example wherein judging with respect to a lowered remaining quantity of electric power in a non-combustion-type flavor inhaler 100 is performed by the non-combustion-type flavor inhaler 100 is explained; however, the present invention is not limited to the above example. Judging with respect to a lowered remaining quantity of electric power in a non-combustion-type flavor inhaler 100 may be performed by a device (for example, a first terminal device 200 or the management device 300) other than the non-combustion-type flavor inhaler 100. In the following description, an example wherein judging regarding whether the remaining quantity of electric power in the non-combustion-type flavor inhaler 100 has been lowered is performed by the management device 300 will be explained as an example. In the present modified example, the judging unit 143 included in the non-combustion-type flavor inhaler 100 in the first embodiment is implemented in the management device 300 instead of the non-com-

bustion-type flavor inhaler 100.

[0199] The non-combustion-type flavor inhaler 100 obtains a parameter representing the remaining quantity of electric power, and transmits the obtained parameter representing the remaining quantity of electric power to the management device 300 via the first terminal device 200. Thereafter, the management device 300 judges whether the remaining-quantity-of-power parameter satisfies a predetermined condition. If it is judged that the remaining-quantity-of-power parameter satisfies a predetermined condition, the management device 300 performs matching. On the other hand, if it is judged that the remaining-quantity-of-power parameter does not satisfy the predetermined condition, the management device 300 does not perform matching. The flow of the process in the above case will be explained with reference to Fig. 15.

[0200] Fig. 15 is a sequence diagram showing an example of a flow of a power supplying process performed by a system 1 according to a second modified example. A non-combustion-type flavor inhaler 100, a first terminal device 200, and a management device 300 relate to the present sequence. In the present sequence, the processes performed after matching are omitted. It is supposed that registration of information relating to the first user and the second user has been completed before the process represented by the present sequence is performed.

[0201] As shown in Fig. 15, first, the non-combustion-type flavor inhaler 100 obtains the remaining-quantity-of-power parameter of the battery 112 (step S302). Next, the non-combustion-type flavor inhaler 100 transmits the remaining-quantity-of-power parameter to the first terminal device 200, and the first terminal device 200 transmits the received remaining-quantity-of-power parameter to the management device 300 (step S304). Next, the management device 300 performs judgment as to whether the remaining-quantity-of-power parameter satisfies a predetermined condition (step S306). Thereafter, if it is judged that the remaining-quantity-of-power parameter satisfies a predetermined condition, the management device 300 performs matching (step S308). In this regard, it is preferable that the management device 300 receive help information from the first terminal device 200 before performing matching. The processes following the above process are similar to the processes following the process in step S114 shown in Fig. 12, or the processes following the process in step S214 shown in Fig. 14.

(3) Third Modified Example

[0202] In the above description, an example wherein decision-making with respect to whether supplying of electric power by a second user is to be performed in the case that a second terminal device 400 has received help information is explained; however, the present invention is not limited to the above example. For example, decision with respect to whether supplying of electric power is to be performed may be made automatically by the second terminal device 400.

[0203] The second terminal device 400 (for example the supplying-power control unit 453) may perform, based on status information of the power supplying device 500 associated with the second terminal device 400, judgment as to whether supplying of electric power to the non-combustion-type flavor inhaler 100 is to be performed. The second terminal device 400 makes a judgment to supply electric power if the remaining quantity of electric power in the power supplying device 500 is sufficient, and a judgment to avoid supplying of electric power if the remaining quantity of electric power in the power supplying device 500 is insufficient. When performing judgment, the second terminal device 400 may refer to the quantity-of-supply-of-power designating information included in the help information.

[0204] Thereafter, the second terminal device 400 replies, to the management device 300, information representing a result of judgment by the second terminal device 200. As a result that decision as to whether supplying of electric power is to be performed is made by the second terminal device 400 automatically in this manner, the speed to make a decision as to whether supplying of electric power is to be performed can be increased.

[0205] Judgment similar to the above judgment may be performed by the management device 300 (for example, the matching unit 333). For example, the management device 300 may refer to status information that has been registered in advance and so on and perform judgment similar to the above judgment.

(4) Fourth Modified Example

[0206] In the above description, it is explained that the position information of the non-combustion-type flavor inhaler 100 is detected, in behalf thereof, by the first terminal device 200; however, the present invention is not limited to the above example. For example, the position information of the non-combustion-type flavor inhaler 100 may be detected by the non-combustion-type flavor inhaler 100.

[0207] The non-combustion-type flavor inhaler 100 according to the present modified example comprises a position detecting unit for detecting the position of the non-combustion-type flavor inhaler 100. The construction of the above position detecting unit is similar to the position detecting unit 230. The non-combustion-type flavor inhaler 100 makes position information detected by the position detecting unit be included in help information, and transmits the information to the first terminal device 200. In the above case, the management device 300 can perform matching based on a more precise position of the non-combustion-type flavor inhaler 100.

(5) Fifth Modified Example

[0208] In the above description, an example wherein first user's registration information of an electric power

supplying service is stored in a first terminal device 200 is explained; however, the present invention is not limited to the above example. For example, a non-combustion-type flavor inhaler 100 may store registration information of an electric power supplying service.

[0209] The non-combustion-type flavor inhaler 100 (for example, the storage unit 114) according to the present modified example stores first user's registration information of an electric power supplying service. Thereafter, the non-combustion-type flavor inhaler 100 makes the first user's registration information of an electric power supplying service be included in help information, and transmits the information to the first terminal device 200. In the above case, even if the first terminal device 200 does not store registration information of an electric power supplying service, it can receive an appropriate electric power supplying service.

« 3. Second Embodiment »

[0210] The present embodiment is a mode in which supplying of electric power, by a power supplying device used by a second user, to a non-combustion-type flavor inhaler 100 used by a first user is realized without performing matching in the management device 300.

< 3.1. Outline >

[0211] Fig. 16 is a figure showing a general construction example of a system 1 according to a second embodiment. As shown in Fig. 16, the system 1 according to the present embodiment comprises a non-combustion-type flavor inhaler 100, a second terminal device 400, and a power supplying device 500. In the present embodiment, as a result that direct communication between the non-combustion-type flavor inhaler 100 and the second terminal device 400 is adopted, supplying of electric power to the non-combustion-type flavor inhaler 100 by the power supplying device 500 is realized. In the present embodiment, it is supposed that the non-combustion-type flavor inhaler 100 and the second terminal device 400 are positioned in such a manner that the distance between them is in a distance that allows direct communication between them, specifically, the case that the first user and the second user are positioned in the same smoking section, they are staying in the same room, or the like is considered.

[0212] In the following description, the present embodiment will be explained in detail. In this regard, explanation of matters shared by the first embodiment and the second embodiment will be simplified or omitted. The constructions of the respective devices are similar to those of the first embodiment.

< 3.2. Technical Characteristics >

[0213] In a manner similar to that in the first embodiment, the non-combustion-type flavor inhaler 100 (for example, the judging unit 143) transmits help information if a remaining-quantity-of-power parameter has satisfied a predetermined condition.

[0214] In a manner similar to that in the first embodiment, the second terminal device 400 (for example the supplying-power control unit 453), after receiving the help information, outputs information based on the help information, and accepts a result of decision-making that is performed by a second user to decide whether supplying of electric power to the non-combustion-type flavor inhaler 100 is to be performed. In this regard, the second terminal device 400 may obtain information necessary for performing decision-making by the second user, by referring to information registered with the management device 300, based on identification information of the non-combustion-type flavor inhaler 100 included in the help information. The necessary information in this case is, for example, profile information and so on.

[0215] In the case that a decision to supply electric power is made by the second user, the second terminal device 400 supports joining of the first user and the second user. For example, the second terminal device 400 outputs, to the second user, information instructing the second user to move to the position of the first user. As a result of movement of the second user based on a joining instruction such as that explained above, it becomes possible to facilitate joining of the first user and the second user together. In addition, the non-combustion-type flavor inhaler 100 may support joining, by transmitting trigger information and emitting light having a predetermined emitting pattern from the notification unit 111, and so on.

[0216] In the following description, a flow of a process in the present embodiment will be explained with reference to Fig. 17.

[0217] Fig. 17 is a sequence diagram showing an example of a flow of a power supplying process performed by a system 1 according to the present embodiment. A non-combustion-type flavor inhaler 100, a second terminal device 400, and a power supplying device 500 relate to the present sequence. It is supposed that registration of information relating to the first user and the second user has been completed before the process represented by the present sequence is performed.

[0218] As shown in Fig. 17, first, the non-combustion-type flavor inhaler 100 obtains a remaining-quantity-of-power parameter of the battery 112 (step S402). Next, the non-combustion-type flavor inhaler 100 judges whether the remaining-quantity-of-power parameter satisfies a predetermined condition (step S404). If it is judged that the remaining-quantity-of-power parameter satisfies the predetermined condition, the non-combustion-type flavor inhaler 100 transmits help information to the second terminal device 400 (step S406).

[0219] Next, the second terminal device 400 displays a UI screen used for performing decision-making as to whether supplying of electric power to the non-combustion-type flavor inhaler 100 is to be performed, and ac-

cepts an input from the second user (step S408). In the case that a result of decision-making indicating an intention to supply electric power is inputted, the second terminal device 400 displays a joining instruction (step S410). After the first user and the second user are successfully joined together based on the joining instruction, supplying of electric power from the power supplying unit 500 to the non-combustion-type flavor inhaler 100 is performed (step S412).

- Supplement

[0220] It should be reminded that, although it has been explained in the above description that the non-combustion-type flavor inhaler 100 and the second terminal device 400 perform direct communication, the present technique is not limited to the above example. For example, the first terminal device 200 may relay communication between the non-combustion-type flavor inhaler 100 and the second terminal device 400.

« 4. Fourth Embodiment »

[0221] The present embodiment is a mode wherein supplying of electric power by a power supplying device 500 installed in an environment to a non-combustion-type flavor inhaler 100, that is used by a first user, is realized via matching by a management device 300.

< 4.1. Outline >

[0222] Fig. 18 is a figure showing a general construction example of a system according to a third embodiment. As shown in Fig. 18, a system 1 according to the present embodiment comprises a non-combustion-type flavor inhaler 100, a first terminal device 200, a management device 300, and a power supplying device 500. The power supplying device 500 according to the present embodiment is realized, for example, as an IoT (Internet of Things) terminal which has a wireless communication function and can autonomously make a decision. The power supplying device 500 has functions including the functions of the second terminal device 400 and the power supplying device 500 in the first embodiment.

[0223] In the following description, the third embodiment will be explained in detail. In this regard, explanation of matters shared by the first embodiment and the present embodiment will be simplified or omitted. The constructions of the non-combustion-type flavor inhaler 100, the first terminal device 200, and the management device 300 are similar to those of the first embodiment.

< 4.2. Construction Examples >

[0224] Fig. 19 is a block diagram showing a construction example of the power supplying device 500 according to the present embodiment. As shown in Fig. 19, the power supplying device 500 comprises a wireless communication unit 510, a battery 520, a position detecting unit 530, a storage unit 540, and a control unit 550.

- Wireless Communication Unit 510

[0225] The wireless communication unit 510 is a wireless interface having functions of a transmission unit and a reception unit for performing transmission/reception of information between the power supplying device 500 and other devices. The wireless communication unit 510 communicates with the management device 300 via communication conforming to an arbitrarily selected standard of communication, for example, Bluetooth, LPWA, wireless LAN, LTE, or LAN, or the like, and a network such as the Internet or the like.

- Battery 520

[0226] The battery 520 is a power source which stores electric power, and supplies electric power to the battery 112 in the non-combustion-type flavor inhaler 100. For example, the battery 520 has a USB connector, and supplies, when it is connected to a USB connector 162 of the connecting device 160 used for supplying power, electric power to the battery 112 in the non-combustion-type flavor inhaler 100 via the USB connector 162. The battery 520 is a lithium-ion battery, for example.

- Position Detecting Unit 530

[0227] The position detecting unit 530 detects position information representing an actual position of the power supplying device 500. The construction of the position detecting unit 530 is similar to that of the position detecting unit 230.

- Storage Unit 540

[0228] The storage unit 540 is a storage medium for storing various kinds of information required for operation of the power supplying device 500. The storage unit 540 comprises, for example, a nonvolatile storage medium such as a flash memory or the like. The storage unit 540 stores various kinds of information relating to supply of electric power to the non-combustion-type flavor inhaler 100.

- Control Unit 550

[0229] The control unit 550 functions as an arithmetic processing unit and a control device, and controls overall operation in the power supplying device 500 according to various kinds of programs. The control unit 550 is realized, for example, by an electronic circuit such as a CPU, a microprocessor, or the like. In this regard, the control unit 550 may comprise a ROM for storing programs, operation parameters, and so on that are to be used, and a RAM for temporarily storing parameters and

so on that are appropriately changed.

[0230] The power supplying device 500 performs various kinds of processes, based on control by the control unit 550. For example, processes for transmitting/receiving information by the wireless communication unit 510, supplying electric power to the other device by the battery 520, detecting a position by the position detecting unit 530, and storing and reading information by the storage unit 540 are examples of processes controlled by the control unit 550. Other processes performed by the power supplying device 500, such as processes for inputting information to respective components, processes based on information outputted from respective components, and so on, are also controlled by the control unit 550. As shown in Fig. 19, the control unit 550 comprises an information registering unit 551 and a supplying-power control unit 553. The information registering unit 551 has a function to register information relating to the power supplying device 500 with the management device 300. The supplying-power control unit 553 has a function to control various kinds of processes relating to supply of electric power to the non-combustion-type flavor inhaler 100 by the power supplying device 500. Details of the above respective components will be explained later in detail.

< 4.3. Technical Characteristics >

(1) Information Registration in Advance

[0231] The power supplying device 500 (for example, the information registering unit 551) registers information relating to the power supplying device 500 with the management device 300. Specifically, the power supplying device 500 transmits information relating to the power supplying device 500 to the management device 300, and the management device 300 (for example the storage control unit 331 and the storage unit 320) stores the receive information. In the following description, an example of to-be-registered information will be explained.

[0232] The management device 300 associates position information of the power supplying device 500 with identification information of the power supplying device 500 and stores it. The position information of the power supplying device 500 is detected by the position detecting unit 530 in the power supplying device 500.

[0233] The management device 300 may associate status information, that relates to the quantity of electric power that can be supplied by the power supplying device 500, with the identification information of the power supplying device 500 and store it. The status information is information representing status relating to power-supplying-ability of the power supplying device 500, such as the remaining quantity of electric power in the power supplying device 500, the speed of supplying of electric power, the presence/absence of the connecting device 160 used for supplying power, and so on. As a result that the status information is stored, it becomes possible to perform matching corresponding to the power-supplying-ability of the power supplying device 500.

(2) Matching

[0234] Matching in the present embodiment is similar to that in the first embodiment. However, since the second user does not relate to the present embodiment, matching based on information of a second user, such as matching based on profile information of the second user or the like, is omitted.

- Judgment Regarding Whether Supplying of Electric Power is to be Performed

[0235] The management device 300 (for example, the matching unit 333), after matching is performed, transmits help information to a matched power supplying device 500. Next, based on the received help information, the power supplying device 500 (for example, the supplying-power control unit 553) performs judgment as to whether supplying of electric power is to be performed. For example, the power supplying device 500 performs judgment as to whether supplying of electric power to a non-combustion-type flavor inhaler 100 is to be performed, based on first user's registration information of an electric power supplying service. Specifically, the power supplying device 500 judges that supplying of electric power is to be performed, only when the number of times that the non-combustion-type flavor inhaler 100 has received supply of electric power has not reached an upper limit of the number of times of charging actions per unit period. As a result, the power supplying device 500 can perform supplying of electric power corresponding to the first user's registration information of the electric power supplying service.

[0236] The power supplying device 500 may perform judgment as to whether supplying of electric power to a non-combustion-type flavor inhaler 100 is to be performed, based on status information of the power supplying device 500. For example, The power supplying device 500 makes a judgment to supply electric power if the remaining quantity of electric power in the battery 520 is sufficient, and a judgment to avoid supplying of electric power if the remaining quantity of electric power in the battery 520 is insufficient. When performing judgment, the power supplying device 500 may refer to the quantity-of-supply-of-power designating information included in the help information.

[0237] Thereafter, the power supplying device 500 returns information representing result of judgment to the management device 300. The process following the above process is similar to that in the first embodiment.

(3) Control of Quantity of Supply of Electric Power

[0238] After the first user moves to the position of the power supplying device 500 in accordance with the join-

ing instruction given to the first user, and the non-combustion-type flavor inhaler 100 is connected, or the like, to the power supplying device 500, the power supplying device 500 performs supplying of electric power to the non-combustion-type flavor inhaler 100.

[0239] When performing the above process, the power supplying device 500 (for example, the supplying-power control unit 553) controls the quantity of electric power supplied to the non-combustion-type flavor inhaler 100. The quantity of electric power supplied to the non-combustion-type flavor inhaler 100 may be determined based on the quantity corresponding to a predetermined number of times of generation of aerosol. The predetermined number of times of generation of aerosol is, for example, the number of times of puffs that is sufficient for fully consuming at least one unused atomizing unit 120, the number of times of puffs that is sufficient for fully consuming at least one unused capsule unit 130, or a predetermined number of times of puffs other than those listed above. The quantity of electric power supplied to the non-combustion-type flavor inhaler 100 may be determined based on the length of power supplying time. The length of power supplying time is a length of time allowed to perform supplying of electric power to the non-combustion-type flavor inhaler 100, and is several minutes, for example. The quantity of electric power supplied to the non-combustion-type flavor inhaler 100 may be determined based on a ratio that is determined by using, as a reference, the remaining quantity of electric power in the battery 520. The ratio that is determined by using, as a reference, the remaining quantity of electric power in the battery 520 is a percentage based on the definition that the remaining quantity of electric power in the battery 520 before a start of supply of electric power is 100%. By controlling the quantity of supplied electric power, the power supplying device 500 can facilitate prevention of supply of an excessive or a deficient quantity of electric power to the non-combustion-type flavor inhaler 100.

(4) Flow of Process

[0240] In the following description, a flow of a process in the present embodiment will be explained with reference to Fig. 20.

[0241] Fig. 20 is a sequence diagram showing an example of a flow of a power supplying process performed by a system 1 according to the present embodiment. A non-combustion-type flavor inhaler 100, a first terminal device 200, a management device 300, and a power supplying device 500 relate to the present sequence. It is supposed that registration of information relating to the first user and the power supplying device 500 has been completed before the process represented by the present sequence is performed.

[0242] The processes in steps S502-S512 are similar to the processes in steps S102-S112 explained with reference to Fig. 12. After step S512, the management device 300 transmits help information to one or more matched power supplying devices 500 (S514).

[0243] Each power supplying device 500, which has received the help information, performs judgment as to whether supplying of electric power to the matched non-combustion-type flavor inhaler 100 is to be performed (step S516). Next, the power supplying device 500 transmits, to the management device 300, information representing result of decision-making (step S518).

[0244] The management device 300, in the case that it has received the result of decision-making indicating an intention to supply electric power, transmits, to the first terminal device 200 which is the sender of the help information, a joining instruction that instructs the first user to move to the position of the power supplying device 500 (step S520). After the first user moves to the position of the power supplying device 500 in accordance with the joining instruction, supplying of electric power from the power supplying unit 500 to the non-combustion-type flavor inhaler 100 is performed (step S522). In this regard, the management device 300, in the case that it has received the result of decision-making indicating an intention to supply electric power, transmits information, that invalidates the matching, to the power supplying devices 500 other than the sender of the above result of decision-making.

« 5. Conclusion »

[0245] In the above description, an embodiment of the present invention has been explained with reference to Figs. 1-20. As explained in the above description, a non-combustion-type flavor inhaler 100 comprises a battery 112 for storing electric power supplied to an atomizing unit 122 which makes an aerosol source generate aerosol. In addition, the non-combustion-type flavor inhaler 100 performs judgment as to whether a remaining-quantity-of-power parameter of the battery 112 satisfies a predetermined condition, and transmits help information if it is judged that the remaining-quantity-of-power parameter of the battery 112 satisfies the predetermined condition. By using the event of transmission of the help information by the non-combustion-type flavor inhaler 100 as a trigger, a power supplying device 500 which can supply electric power to the non-combustion-type flavor inhaler 100 is specified. Next, the non-combustion-type flavor inhaler 100 and the specified power supplying device 500 are connected, or the like, with each other after moving of the first user and/or the second user, and supplying of electric power from the power supplying device 500 to the non-combustion-type flavor inhaler 100 is realized. As a result, it becomes possible to prevent lowering of usability due to lowering of the remaining quantity of electric power in the non-combustion-type flavor inhaler 100.

[0246] In addition, a first terminal device 200 transmits help information transmitted from the non-combustion-type flavor inhaler 100, and transmits help information corresponding to the received help information. Thus, even in the case that the non-combustion-type flavor in-

haler 100 has a short-range wireless communication function only and cannot perform direct communication with a management device 300 easily, the first terminal device 200 can relay help information to the management device 300.

[0247] Further, the management device 500 stores position information of the power supplying device 500. In addition, the management device 300, after receiving help information relating to a non-combustion-type flavor inhaler 100, specifies a power supplying device 500 which has a predetermined positional relationship with the non-combustion-type flavor inhaler 100, and sets the specified power supplying device 500 as an object and transmits help information. As a result, it becomes possible to realize supplying of electric power to the non-combustion-type flavor inhaler 100 by a power supplying device 500 which has an appropriate positional relationship with the non-combustion-type flavor inhaler 100, such as the distance to it from the non-combustion-type flavor inhaler 100, in which the remaining quantity of electric power has been lowered, is closer, or the like.

[0248] In addition, a second terminal device 400, after receiving help information, outputs information relating to the position of the non-combustion-type flavor inhaler 100, and information representing a state that a request for supply of electric power to the non-combustion-type flavor inhaler 100 has been made. As a result, the second user can recognize that a request for supply of electric power to the non-combustion-type flavor inhaler 100 has been made, and can make a decision as to whether supplying of electric power is to be performed, by taking a distance required to move for joining with the first user into consideration.

[0249] Further, the power supplying device 500 stores electric power supplied to a non-combustion-type flavor inhaler 100, and, after receiving help information, performs, based on the help information, judgment as to whether supplying of electric power to the non-combustion-type flavor inhaler 100 is to be performed. The power supplying device 500 can perform supplying of electric power without decision-making by the second user. Thus, it also becomes possible to supply electric power from a power supplying device 500 installed in an environment to a non-combustion-type flavor inhaler 100.

[0250] In the above description, preferred embodiments of the present invention have been explained in detail with reference to the attached figures; however, the present invention is not limited to the above examples. It is obvious to a person, who has ordinary skill in the technical field to which the present invention pertains, that it is possible to conceive of various kinds of modified examples or rectified examples within the scope of the technical idea disclosed in the claims; and it is obvious that they are also those pertaining to the scope of the technique of the present invention.

[0251] For example, it is explained in the above description that a non-combustion-type flavor inhaler 100 only, i.e., a single unit, is used, and transmission of help information is performed by using, as a trigger thereof, an event of lowering of the remaining quantity of electric power in the non-combustion-type flavor inhaler 100; however, the present invention is not limited to the above example. For example, a form that may be considered is that a non-combustion-type flavor inhaler 100 is used in combination with an external battery, and a charge of electricity to the non-combustion-type flavor inhaler 100 is given by the external battery every time after completion of several number of times of puff actions. In the above case, transmission of help information may be performed by using, as a trigger thereof, an event of lowering of the remaining quantity of electric power in the external battery. The external battery is also an example of the aerosol generation control device.

[0252] For example, the above explained respective embodiments may be combined appropriately. For example, the second embodiment and the third embodiment may be combined with each other, and a non-combustion-type flavor inhaler 100 may directly communicate with a power supplying device 500. In the above case, the non-combustion-type flavor inhaler 100 can directly transmit help information to a power supplying device 500 installed in an environment in a place close thereto, and receive supply of electric power. Further, for example, the devices according to the first to third embodiment may exist in a mixed manner. In the above case, if a non-combustion-type flavor inhaler 100 transmits help information, a second terminal device 400 and/or a power supplying device 500 indirectly receives, through matching by a management device 300, or directly receives, without matching by the management device 300, the help information. If it is decided by one of the second terminal device 400 and the power supplying device 500 that supplying of electric power is to be performed, the help information in other devices is invalidated.

[0253] Further, the processes explained by using each of the flow charts and sequence diagrams in the present specification may not necessarily be performed in the illustrated order. Some processing steps may be performed in a parallel manner. Further, an additional processing step may be adopted, and some processing steps may be omitted.

[0254] It should be reminded that the series of processes performed by the respective devices explained in the present specification may be realized by using any one of software, hardware, and a combination of software and hardware. Programs, that are components of the software, are stored in advance in a storage medium (a non-transitory medium: a non-transitory media) implemented in the inside or the outside of the respective devices, for example. Further, for example, each program is read into a RAM when a computer is operated, and is executed by a processor such as a CPU. The above storage medium is, for example, a magnetic disk, an optical disk, a magneto-optical disk, a flash memory, or the like. Further, the above-explained computer program may be delivered via a network without using a storage medium,

for example.

REFERENCE SIGNS LIST

[0255]

1	System
100	Non-combustion-type flavor inhaler
110	First member, electric unit
111	Notification unit
112	Battery
113	Sensor
114	Storage unit
115	Control unit
116	Wireless communication unit
119	Female connector
120	Second unit, atomizing unit
121	Reservoir
122	Atomizing part
123	Air taking-in flow path
124	Aerosol flow path
125	Suction opening part
126	Arrow
130	Third member, capsule unit
131	Flavor source
141	Remaining-quantity-of-power parameter obtaining unit
143	Judging unit
160	Connecting device used for supplying power
161	Male connector
162	Connector
162	USB connector
171	Housing
171A	Top housing
171B	Bottom housing
172	Cover
172a	Opening part
173	Switch
174	Lid part
175	Heating unit
180	Smoking article
180A	Base-material part
180B	Suction opening part
181	Filling article
182	First rolling paper
183	Second rolling paper
184	Paper tube part
185	Filter part
186	Hollow segment part
200	First terminal device
210	Wireless communication unit
220	Input/output unit
230	Position detecting unit
240	Storage unit
250	Control unit
251	Information registering unit
253	Charging control unit
300	Management device
310	Communication unit
320	Storage unit
330	Control unit
331	Storage control unit
333	Matching unit
400	Second terminal device
410	Wireless communication unit
420	Input/output unit
430	Position detecting unit
440	Storage unit
450	Control unit
451	Information registering unit
453	Supplying-power control unit
500	Power supplying device
510	Wireless communication unit
520	Battery
530	Position detecting unit
540	Storage unit
550	Control unit
551	Information registering unit
553	Supplying-power control unit

Claims

1. An aerosol generation control device comprising:

a power source which stores electric power that is supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol;
a control unit for judging whether a parameter representing the remaining quantity of electric power in the power source satisfies a predetermined condition; and
a wireless communication unit for transmitting first information, when the control unit has judged that the parameter satisfies the predetermined condition.

2. The aerosol generation control device as recited in Claim 1, wherein
the state wherein the predetermined condition is satisfied includes a state wherein the parameter represents that the remaining quantity of electric power is less than a predetermined threshold value.

3. The aerosol generation control device as recited in Claim 2, wherein
the predetermined threshold value is that used for judging whether electric power, that is sufficient for completely consuming at least one unused aerosol generation based material, remains in the power source.

4. The aerosol generation control device as recited in Claim 2, wherein

the aerosol is sucked, together with a flavor generated from a flavor source, by a user, and
the predetermined threshold value is that used for judging whether electric power, that is sufficient for completely consuming at least one unused flavor source, remains in the power source.

5. The aerosol generation control device as recited in Claim 2, wherein
the predetermined threshold value is that used for judging whether electric power, that corresponds to a predetermined number of times of generation of aerosol, remains in the power source.

6. The aerosol generation control device as recited in Claim 2, wherein
the predetermined threshold value is that used for judging whether supply of electric power to the aerosol generating unit is to be limited.

7. The aerosol generation control device as recited in Claim 4, wherein
the predetermined threshold value is set based on identification information of the aerosol generation base-material and/or identification information of the flavor source.

8. The aerosol generation control device as recited in any one of Claims 1-7 wherein,

the aerosol generation control device comprises a position detecting unit for detecting position information of the aerosol generation control device, and
the first information comprises the position information detected by the position detecting unit.

9. The aerosol generation control device as recited in any one of Claims 1-8, wherein

the aerosol generation control device comprises a storage unit for storing registration information of a power supplying service, and
the first information comprises the registration information stored in the storage unit.

10. The aerosol generation control device as recited in any one of Claims 1-9, wherein
the wireless communication unit performs wireless communication using Bluetooth (a registered trademark) or LPWA (Low Power Wide Area).

11. The aerosol generation control device as recited in any one of Claims 1-10, wherein
the control unit performs judgment as to whether the parameter satisfies the predetermined condition, by using, as a trigger thereof, an event that attaching/detaching of the aerosol generation base-material to/from the aerosol generation control device is detected, an event that authentication of the aerosol generation base-material is completed successfully, an event that authentication of the flavor source which generates a flavor that is sucked by a user together with aerosol generated by the aerosol generation base-material is completed successfully, an event that the power source of the aerosol generation control device is turned on, or an event that a suction action performed by a user is detected.

12. A terminal device comprising:

a receiving unit for receiving first information, that is transmitted from an aerosol generation control device comprising a power source for storing electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol, and relates to a remaining quantity of electric power in the power source; and
a transmitting unit for transmitting second information corresponding to the first information.

13. The terminal device as recited in Claim 12, wherein the second information comprises position information of the aerosol generation control device.

14. The terminal device as recited in Claim 13, wherein

the terminal device comprises a position detecting unit for detecting position information of the terminal device, and
the second information comprises, as position information of the aerosol generation control device, the position information detected by the position detecting unit.

15. The terminal device as recited in Claim 13, wherein the position information of the aerosol generation control device is positional information representing a position different from a position of the aerosol generation control device.

16. The terminal device as recited in any one of Claims 12-15, wherein
the terminal device comprises an output unit for outputting information relating to a position of a power supplying device which can supply electric power to the aerosol generation control device.

17. The terminal device as recited in any one of Claims 13-16, wherein
the terminal device comprises an output unit for outputting profile information of a user associated with a power supplying device which can supply electric power to the aerosol generation control device.

18. The terminal device as recited in any one of Claims 13-17, wherein
the terminal device comprises an input unit for accepting an input of a reward given to a user associated with a power supplying device which has supplied electric power to the aerosol generation control device.

19. A management device comprising:

a storage unit for storing position information of a power supplying device;
a receiving unit for receiving position information of an aerosol generation control device comprising a power source for storing electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol;
a control unit for specifying the power supplying device which has predetermined positional relationship with the aerosol generation control device; and
a transmitting unit for setting, as an object, the power supplying device specified by the control unit and transmitting third information.

20. The management device as recited in Claim 19, wherein
the storage unit stores position information of the power supplying device in association with identification information of a user associated with the power supplying device.

21. The management device as recited in Claim 19 or 20, wherein
the storage unit stores status information relating to the quantity of electric power that can be supplied by the power supplying device in association with identification information of a user associated with the power supplying device.

22. The management device as recited in any one of Claims 19-21, wherein
the third information comprises position information of the aerosol generation control device.

23. The management device as recited in any one of Claims 19-22, wherein
the control unit specifies the power supplying device based on profile information of a user associated with the aerosol generation control device and/or a user associated with the power supplying device.

24. The management device as recited in any one of Claims 19-23, wherein
the control unit judges whether a parameter representing a remaining quantity of electric power in the power source included in the aerosol generation control device satisfies a predetermined condition, and, if it is judged that the parameter satisfies the predetermined condition, specifies the power supplying device having the predetermined positional relationship with the aerosol generation control device.

25. A terminal device comprising:

a communication unit for receiving information relating to a remaining quantity of electric power in a power source included in an aerosol generation control device, wherein the power source stores electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; and
an output unit for outputting information relating to a position of the aerosol generation control device and information representing a state that a request for supply of electric power to the aerosol generation control device is being made.

26. The terminal device as recited in Claim 25, wherein the output unit outputs information that requests that a user make a decision of whether or not supply of electric power to the aerosol generation control device is to be performed.

27. The terminal device as recited in Claim 25 or 26, wherein
the output unit outputs profile information of a user associated with the aerosol generation control device.

28. The terminal device as recited in any one of Claims 25-27, wherein

the terminal device comprises a control unit which judges, based on status information relating to the quantity of electric power that can be supplied by a power supplying device associated with the terminal device, whether supplying of electric power to the aerosol generation control device is to be performed; and
the communication unit returns information representing result of judgment by the control unit.

29. A power supplying device comprising:

a receiving unit for receiving information relating to a remaining quantity of electric power in a power source included in an aerosol generation control device, wherein the power source stores electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol;
a power source for storing electric power supplied to the aerosol generation control device; and

a control unit which judges, based on information received by the receiving unit and relating to the remaining quantity of electric power, whether supplying of electric power to the aerosol generation control device is to be performed.

30. The power supplying device as recited in Claim 29, wherein
the control unit controls the quantity of supply of electric power to the aerosol generation control device.

31. The power supplying device as recited in Claim 30, wherein
the quantity of supply of electric power to the aerosol generation control device is determined by using a ratio that is obtained by using, as a reference, the quantity corresponding to a predetermined number of times of generation of aerosol, a predetermined length of time of supply of electric power, or the remaining quantity of electric power in the power source.

32. An information processing method comprising steps of:

judging whether a parameter representing a remaining quantity of electric power in a power source satisfies a predetermined condition, wherein the power source is that for storing electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; and
transmitting first information, when it is judged that the parameter satisfies the predetermined condition.

33. An information processing method comprising steps of:

receiving first information, that is transmitted from an aerosol generation control device comprising a power source for storing electric power supplied to an aerosol generating unit that makes an aerosol generation base-material generate aerosol, and relates to a remaining quantity of electric power in the power source; and
transmitting second information corresponding to the first information.

34. An information processing method comprising steps of:

storing position information of a power supplying device;
receiving position information of an aerosol generation control device comprising a power source for storing electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol;
specifying the power supplying device which has predetermined positional relationship with the aerosol generation control device; and
setting, as an object, the specified power supplying device and transmitting third information.

35. An information processing method comprising steps of:

receiving information relating to a remaining quantity of electric power in a power source included in an aerosol generation control device, wherein the power source stores electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; and
outputting information relating to a position of the aerosol generation control device and information representing a state that a request for supplying of electric power to the aerosol generation control device is being made.

36. An information processing method comprising steps of:

receiving information relating to a remaining quantity of electric power in a power source included in an aerosol generation control device, wherein the power source stores electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; and
judging, based on received information relating to the remaining quantity of electric power, whether supplying of electric power from a power source, which stores electric power supplied to the aerosol generation control device, to the aerosol generation control device is to be performed.

37. A program which makes a computer perform processes comprising:

a process for judging whether a parameter representing a remaining quantity of electric power in a power source satisfies a predetermined condition, wherein the power source is that for storing electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; and
a process for transmitting first information, when it is judged that the parameter satisfies the predetermined condition.

38. A program which makes a computer perform proc-

esses comprising:

a process for receiving first information, that is transmitted from an aerosol generation control device comprising a power source for storing electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol, and relates to a remaining quantity of electric power in the power source; and
a process for transmitting second information corresponding to the first information.

39. A program which makes a computer perform processes comprising:

a process for receiving information relating to a remaining quantity of electric power in a power source included in an aerosol generation control device, wherein the power source stores electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; and
a process for outputting information relating to a position of the aerosol generation control device and information representing a state that a request for supplying of electric power to the aerosol generation control device is being made.

40. A program which makes a computer perform processes comprising:

a process for receiving information relating to a remaining quantity of electric power in a power source included in an aerosol generation control device, wherein the power source stores electric power supplied to an aerosol generating unit which makes an aerosol generation base-material generate aerosol; and
a process for judging, based on received information relating to the remaining quantity of electric power, whether supplying of electric power from a power source, which stores electric power supplied to the aerosol generation control device, to the aerosol generation control device is to be performed.

Fig. 1

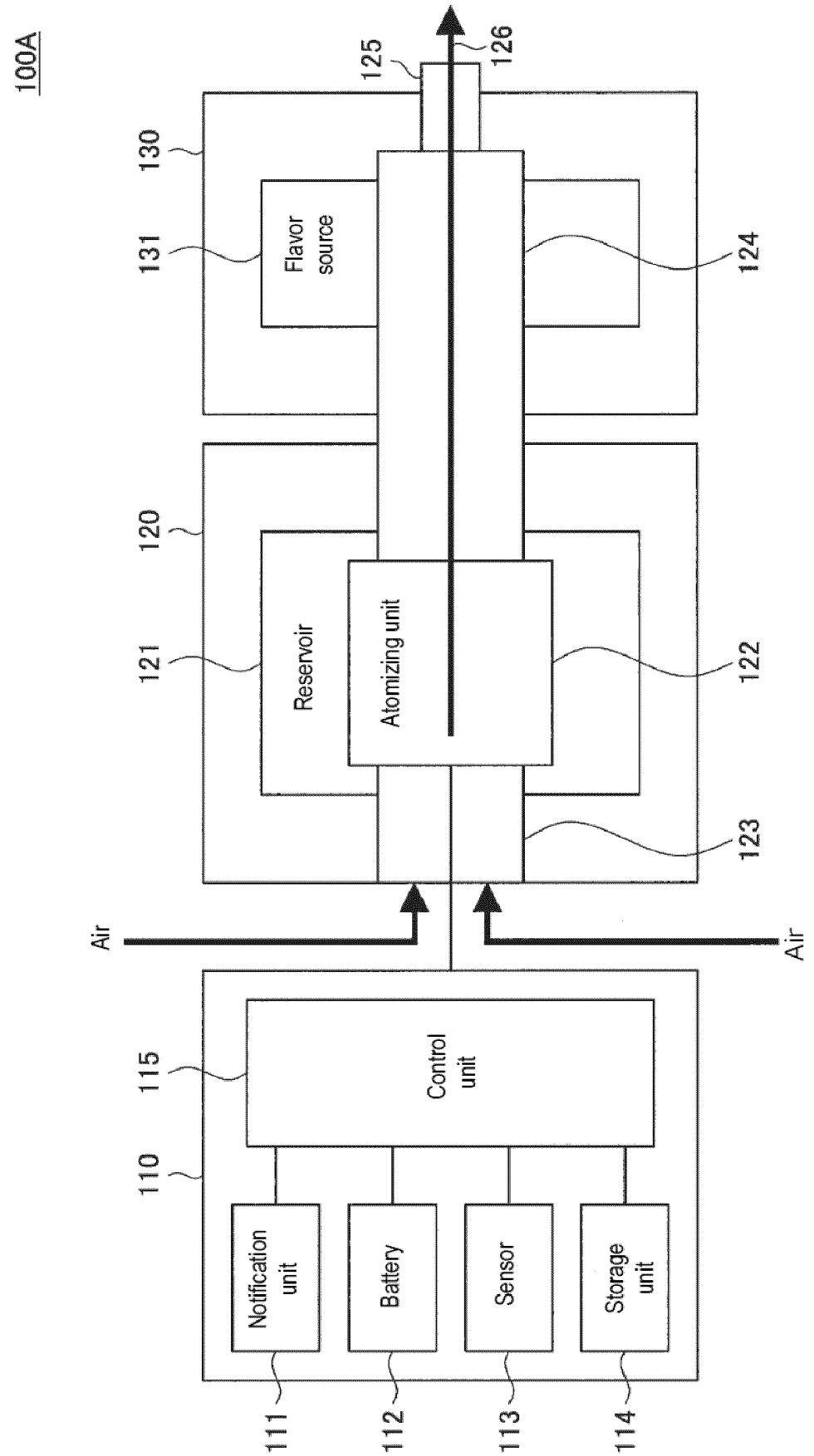

100A
125
126
130
131
Flavor source
124
120
121
Reservoir
Atomizing unit
122
123
Air
Air
115
Control unit
110
Notification unit
Battery
Sensor
Storage unit
111
112
113
114

Fig. 2

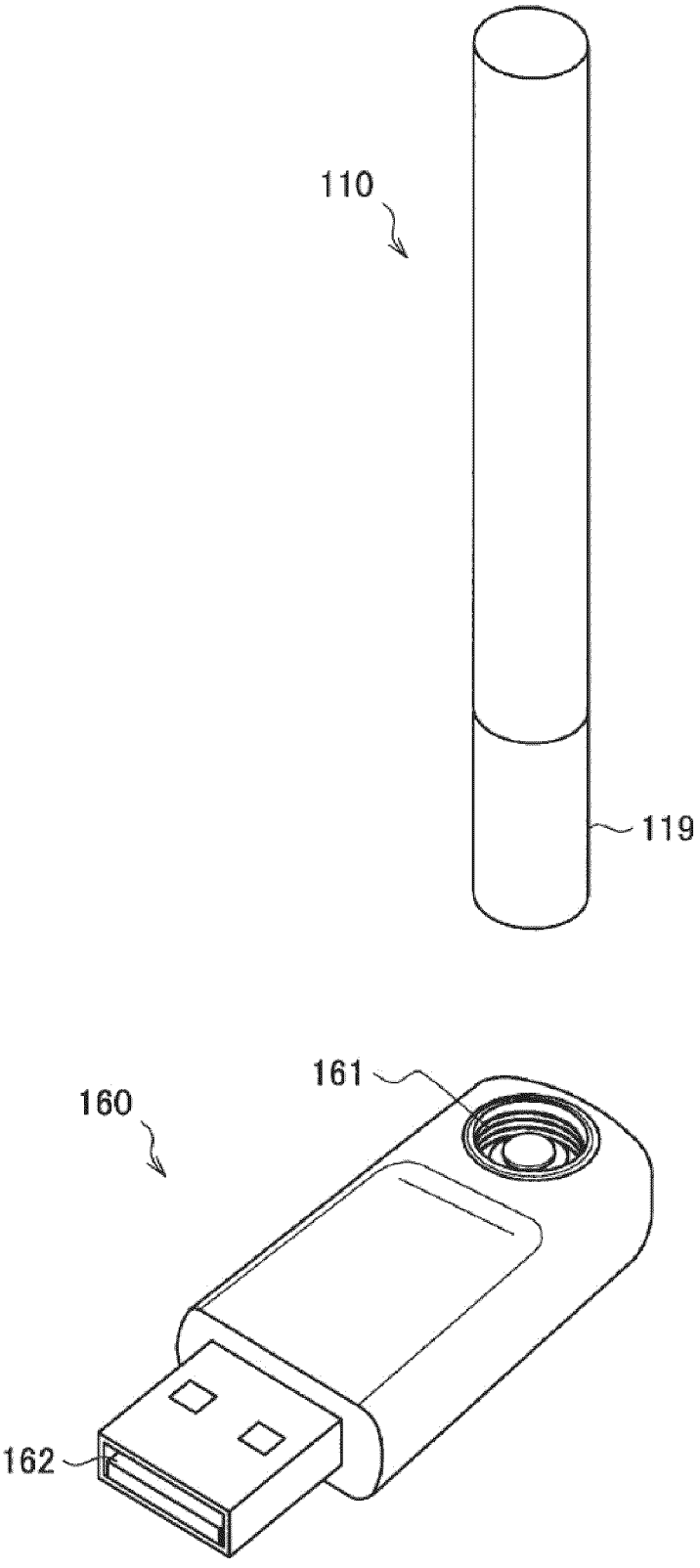


Fig. 3

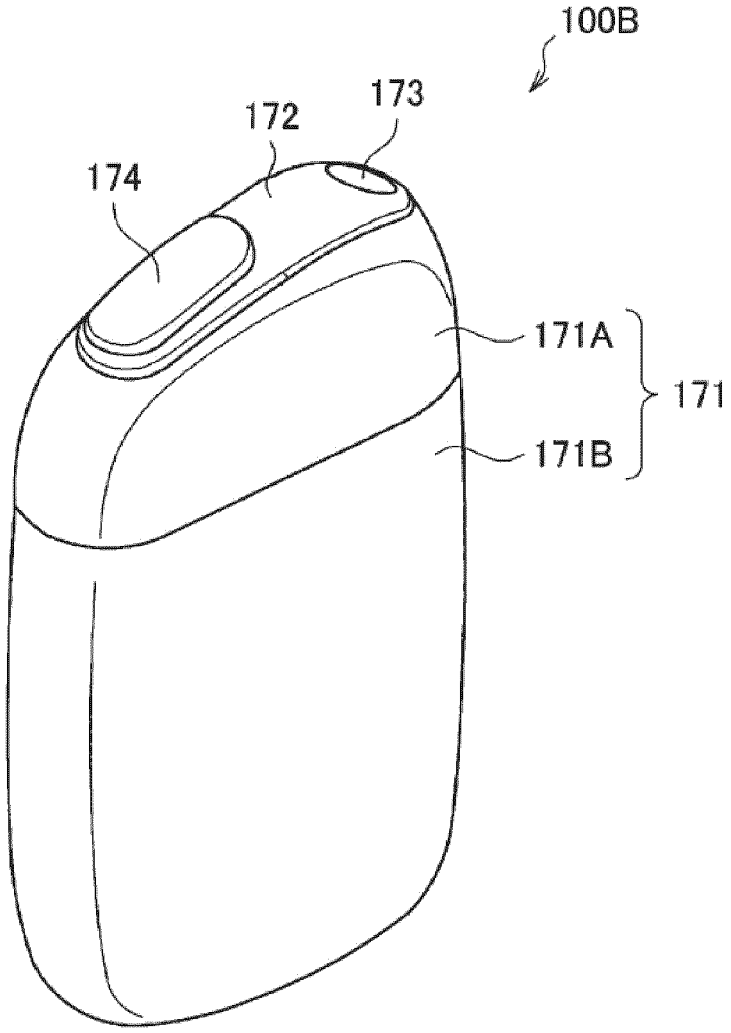


Fig. 4

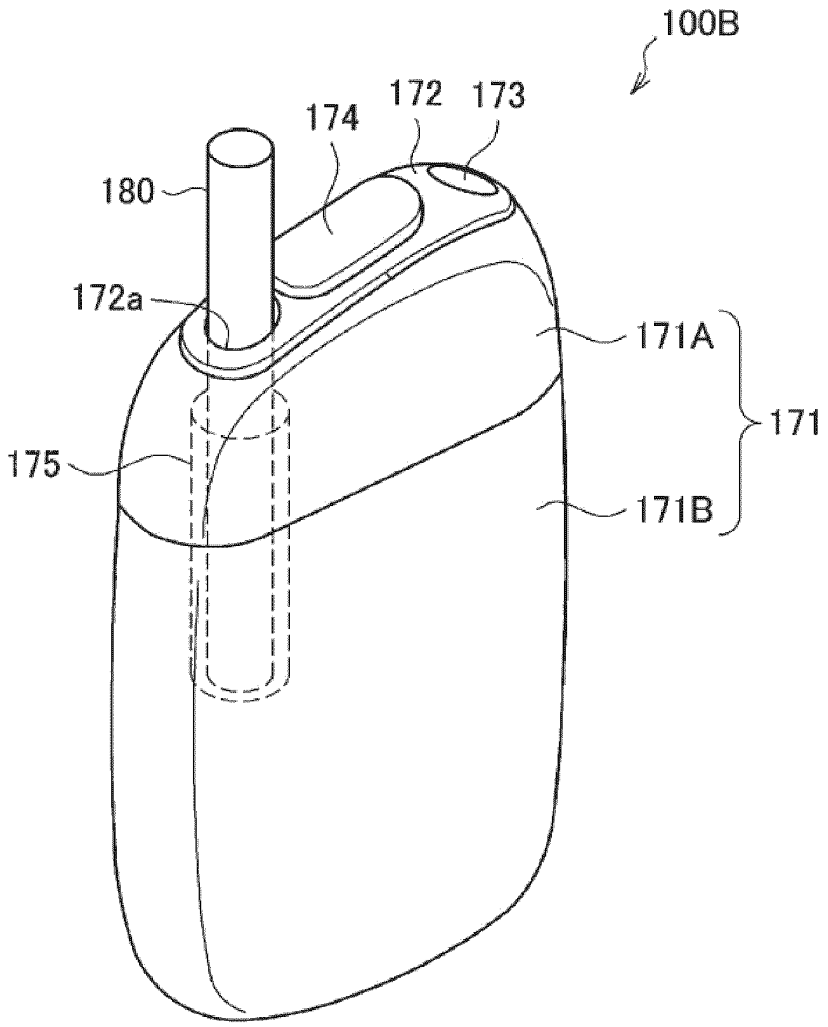

100B
174
172
173
180
172a
171A
171
175
171B

Fig. 5

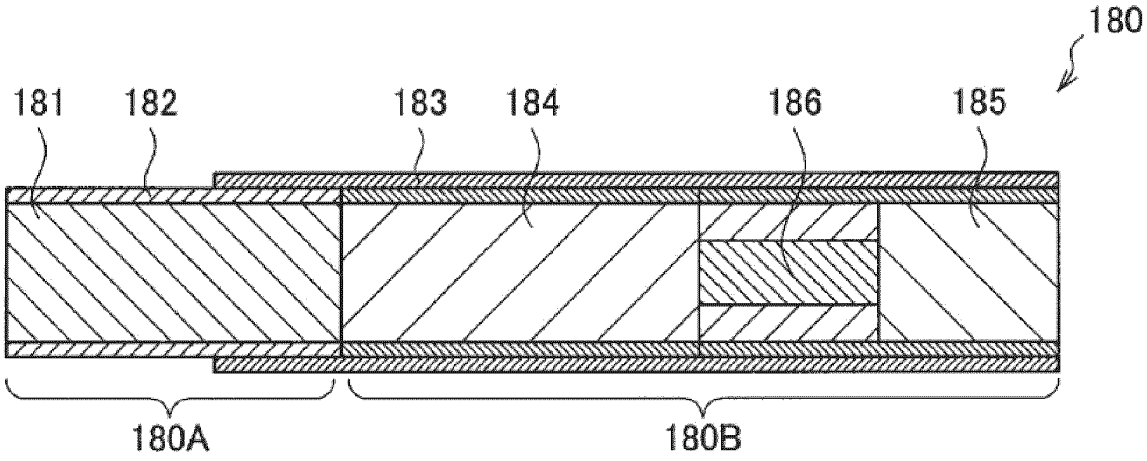

180
181
182
183
184
186
185
180A
180B

Fig. 6

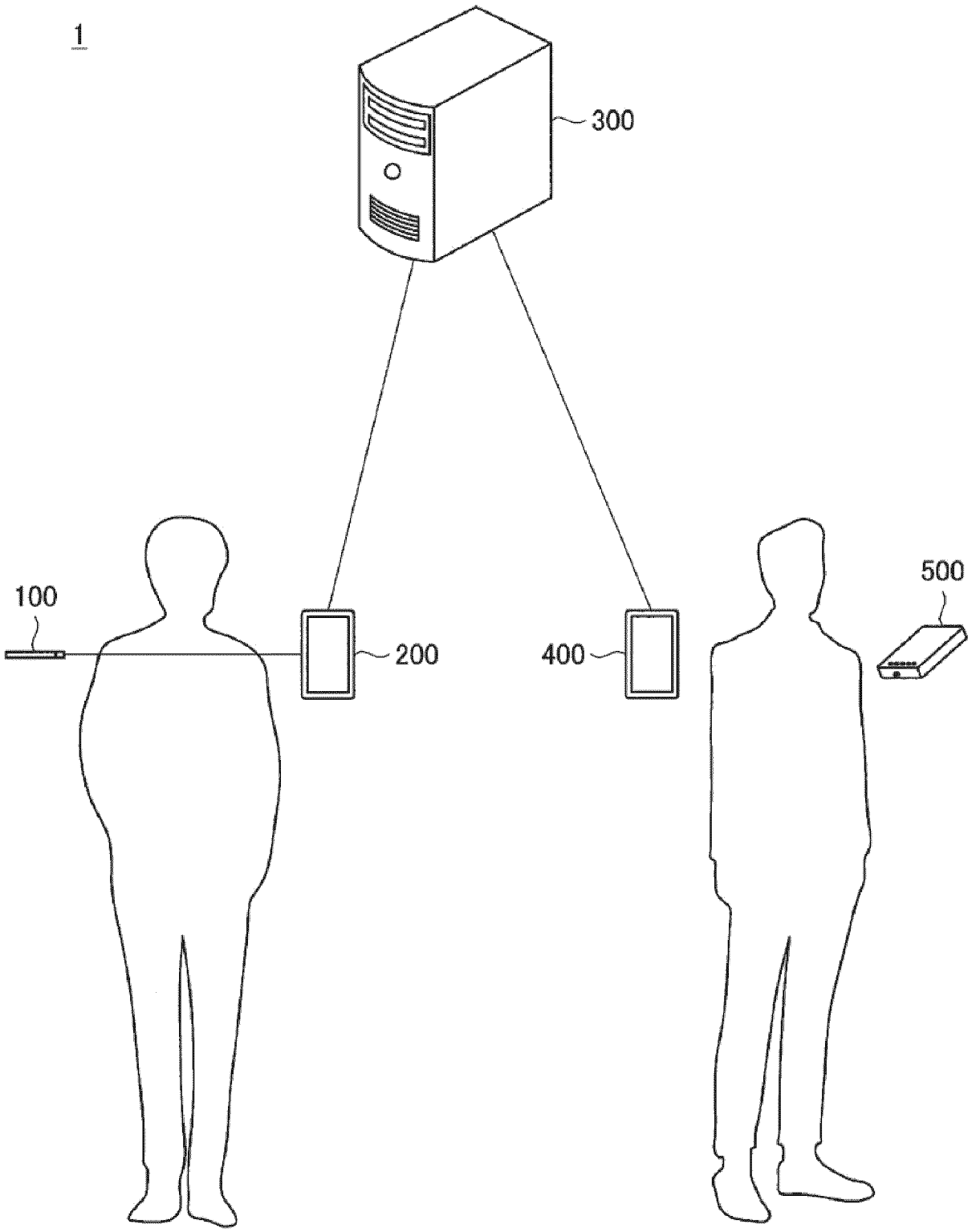


Fig. 7

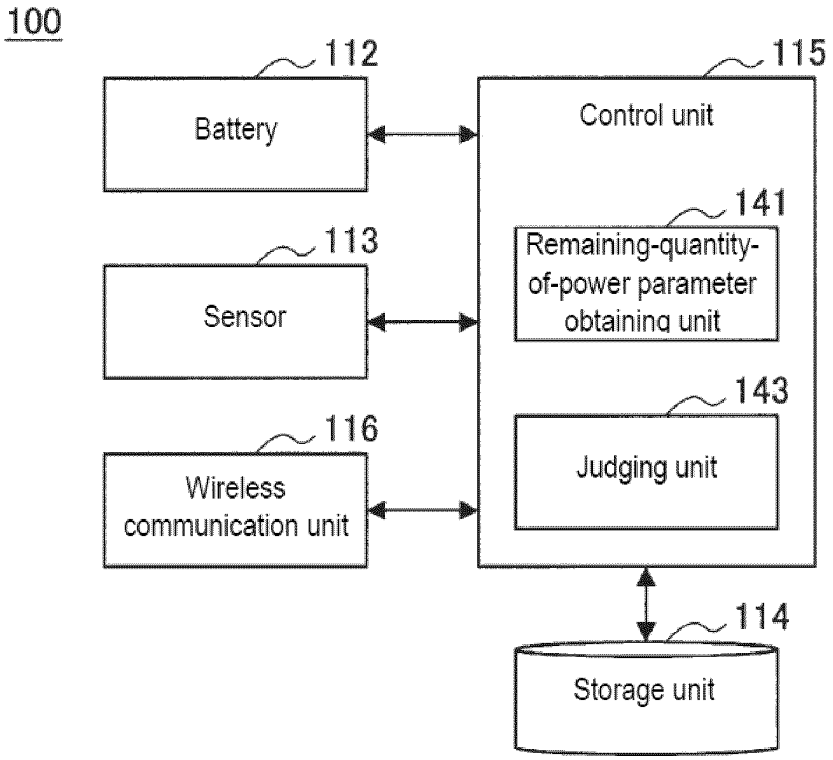

100
112
Battery
115
Control unit
141
Remaining-quantity-of-power parameter obtaining unit
113
Sensor
143
Judging unit
116
Wireless communication unit
114
Storage unit

Fig. 8

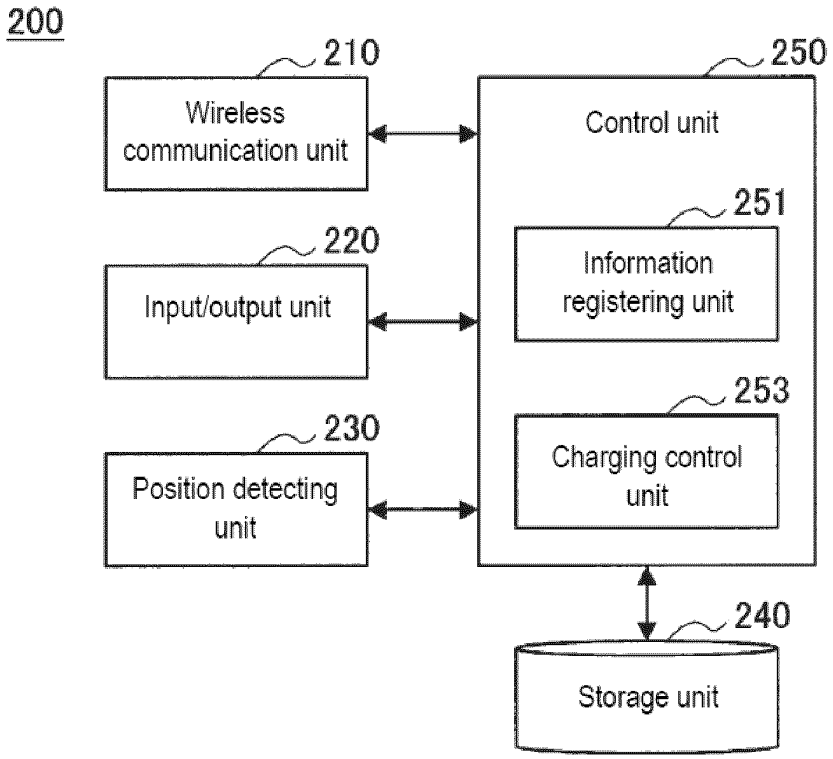

200
210
Wireless communication unit
250
Control unit
251
Information registering unit
220
Input/output unit
253
Charging control unit
230
Position detecting unit
240
Storage unit

Fig. 9

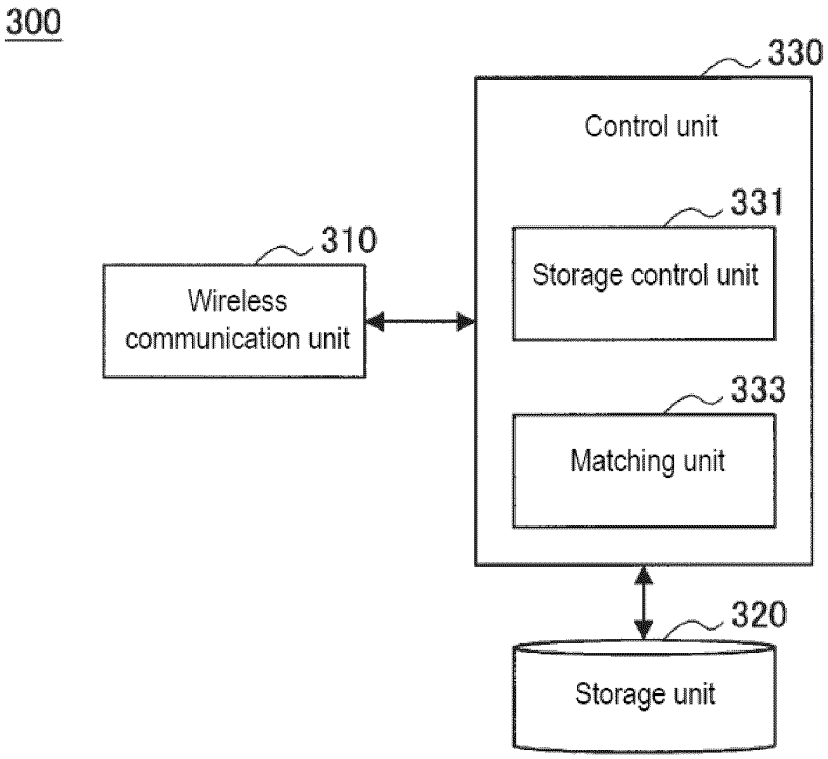

300
330
Control unit
331
Storage control unit
310
Wireless communication unit
333
Matching unit
320
Storage unit

Fig. 10

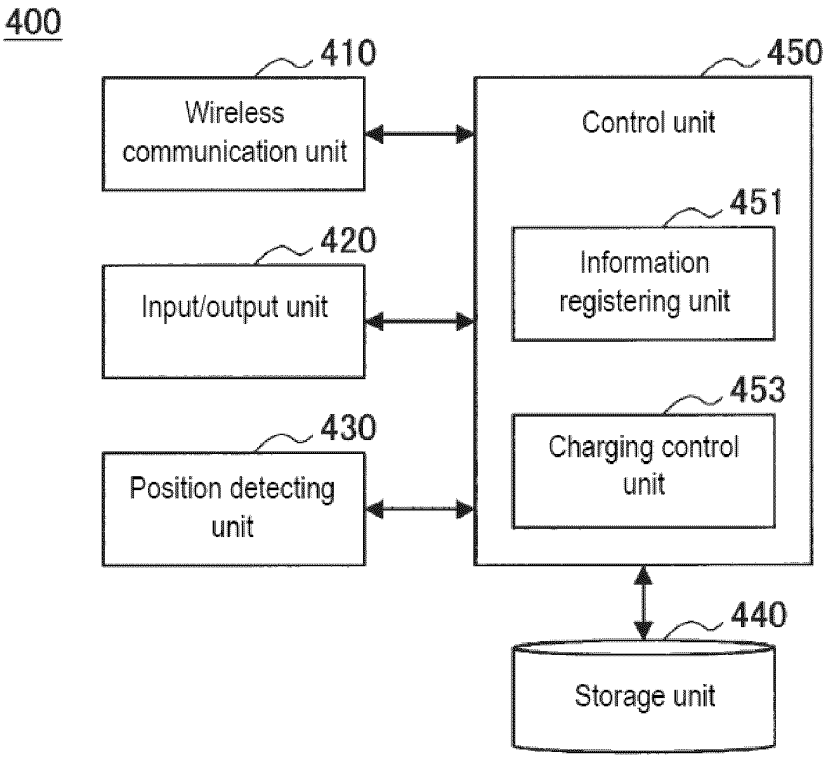

400
410
Wireless communication unit
450
Control unit
451
Information registering unit
420
Input/output unit
453
Charging control unit
430
Position detecting unit
440
Storage unit

Fig. 11

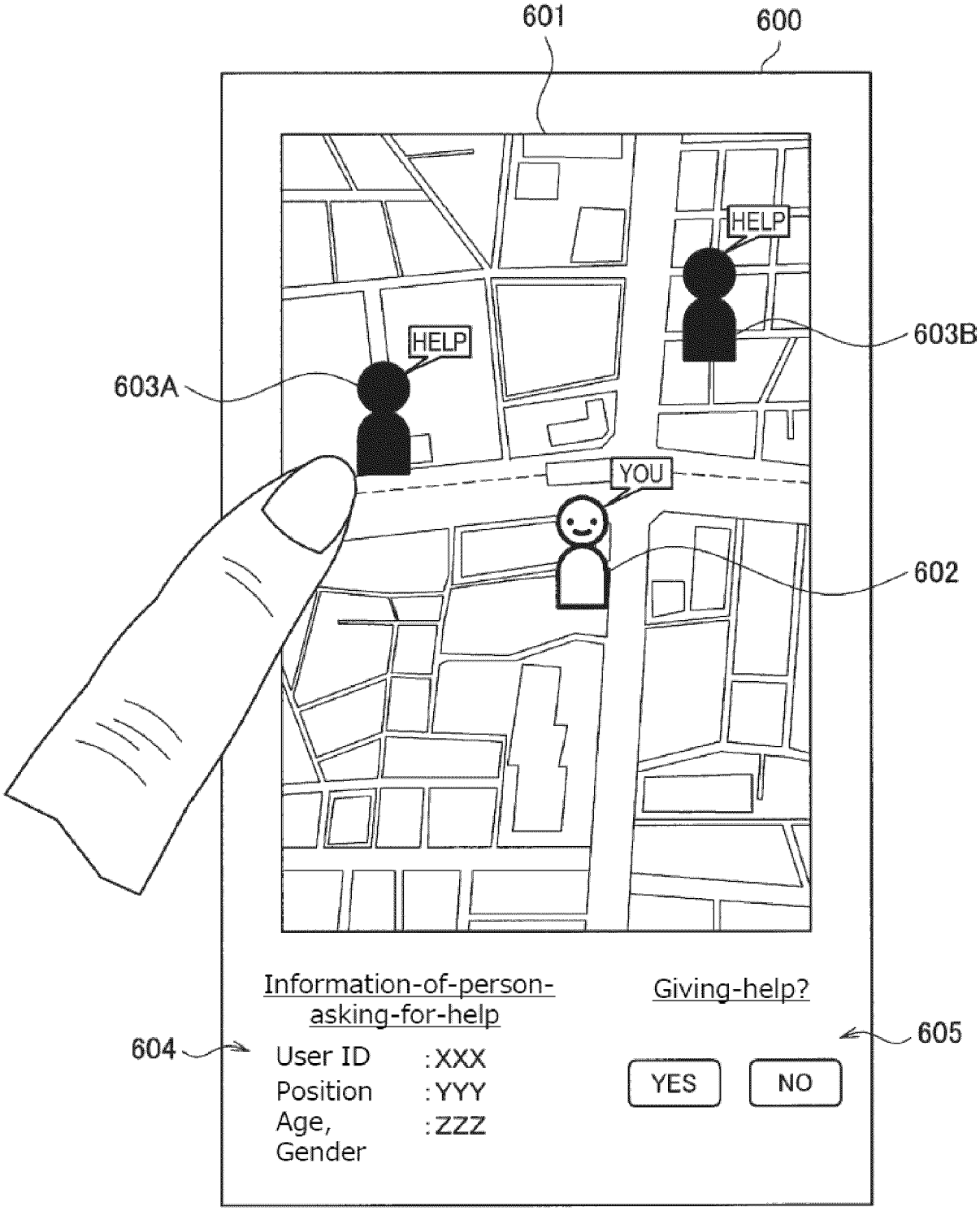

601
600
HELP
HELP
603B
603A
YOU
602
Information-of-person-asking-for-help
Giving-help?
604
605
User ID :XXX
Position :YYY
Age, Gender :ZZZ
YES
NO

Fig. 12

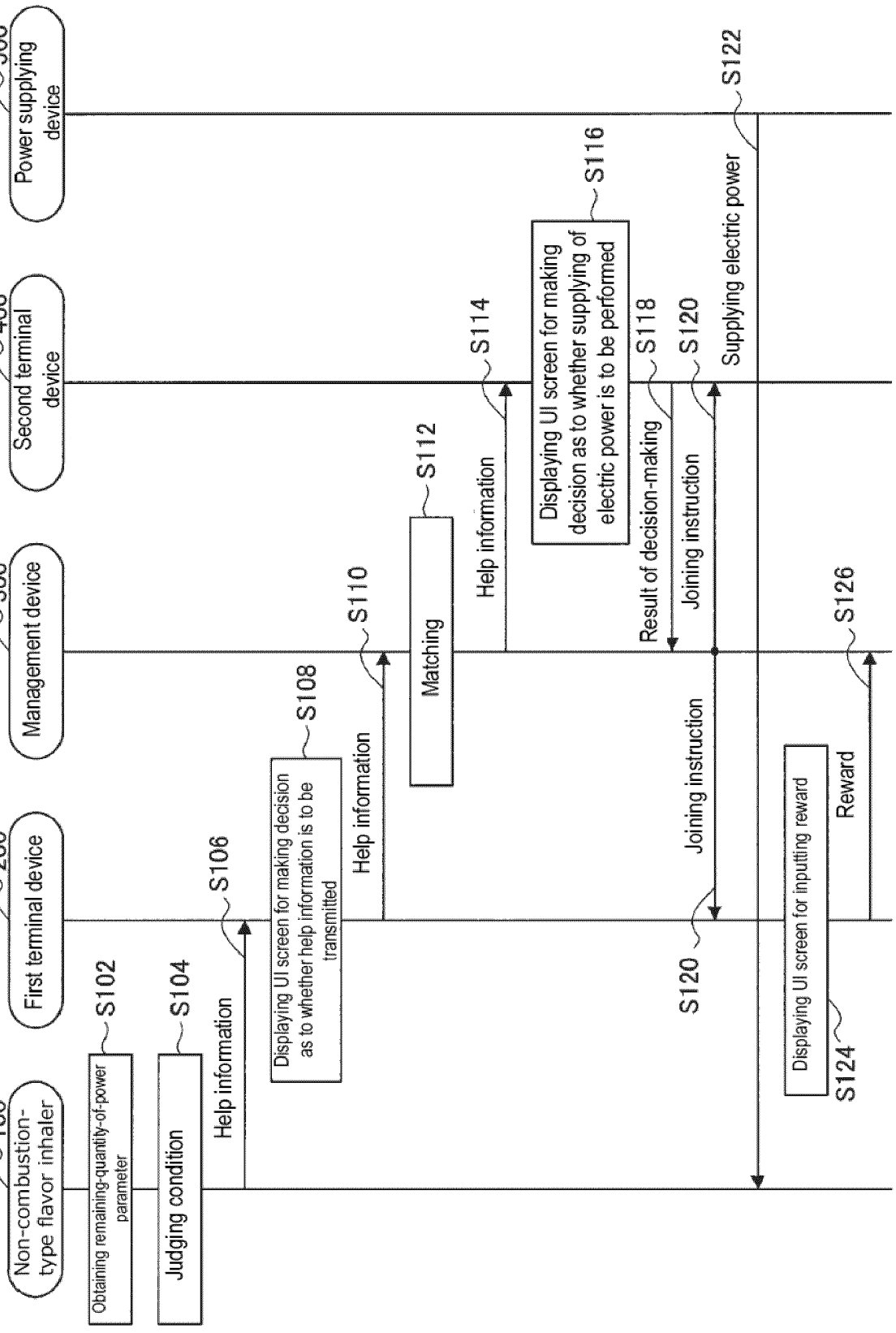

100
Non-combustion-type flavor inhaler
200
First terminal device
300
Management device
400
Second terminal device
500
Power supplying device
S102
Obtaining remaining-quantity-of-power parameter
S104
Judging condition
S106
Help information
S108
Displaying UI screen for making decision as to whether help information is to be transmitted
S110
Help information
S112
Matching
S114
Help information
S116
Displaying UI screen for making decision as to whether supplying of electric power is to be performed
S118
Result of decision-making
S120
Joining instruction
S120
Joining instruction
S122
Supplying electric power
S124
Displaying UI screen for inputting reward
S126
Reward

Fig. 13

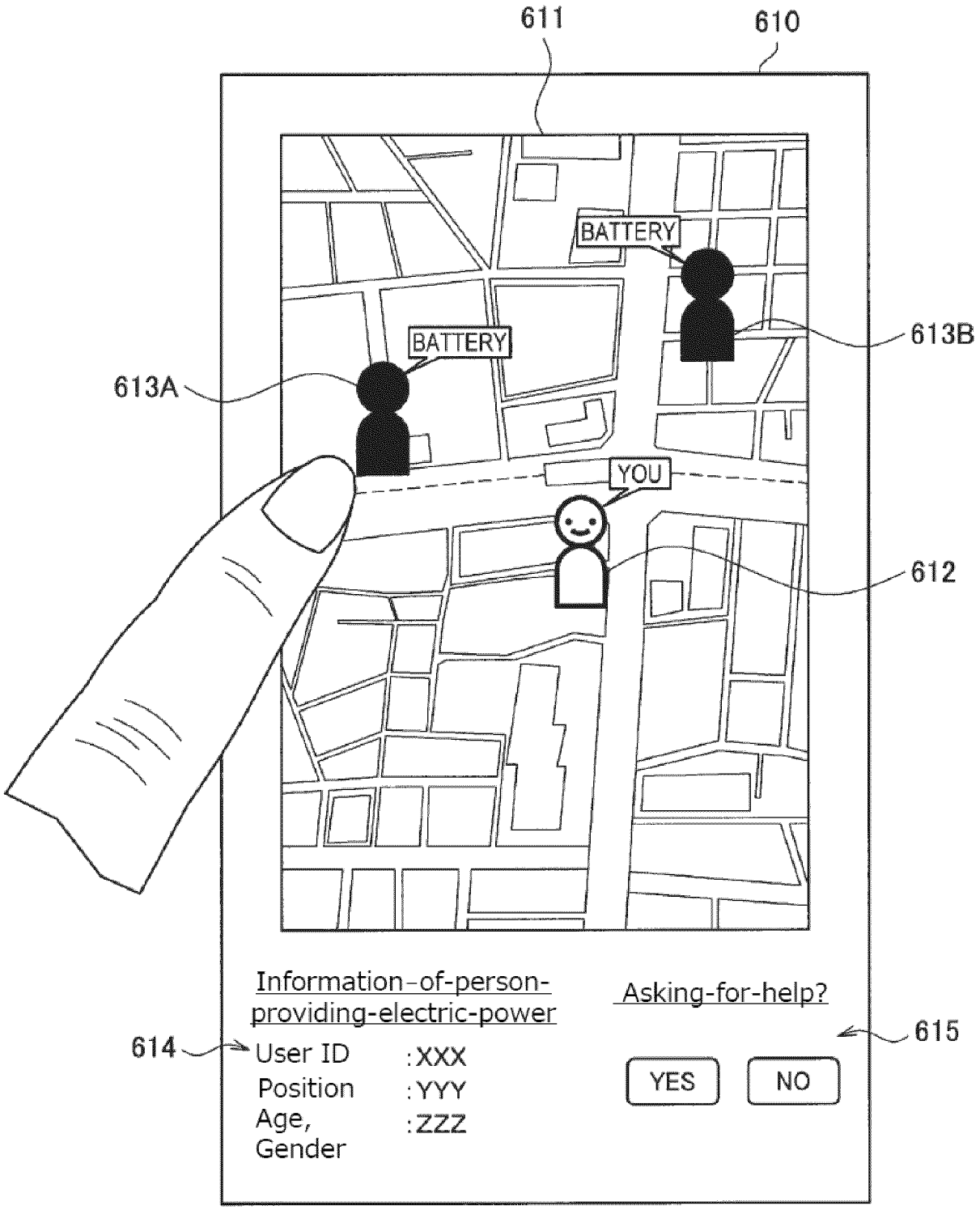

611
610
BATTERY
BATTERY
613B
613A
YOU
612
Information-of-person-providing-electric-power
Asking-for-help?
614
615
User ID :XXX
Position :YYY
Age, Gender :ZZZ
YES
NO

Fig. 14

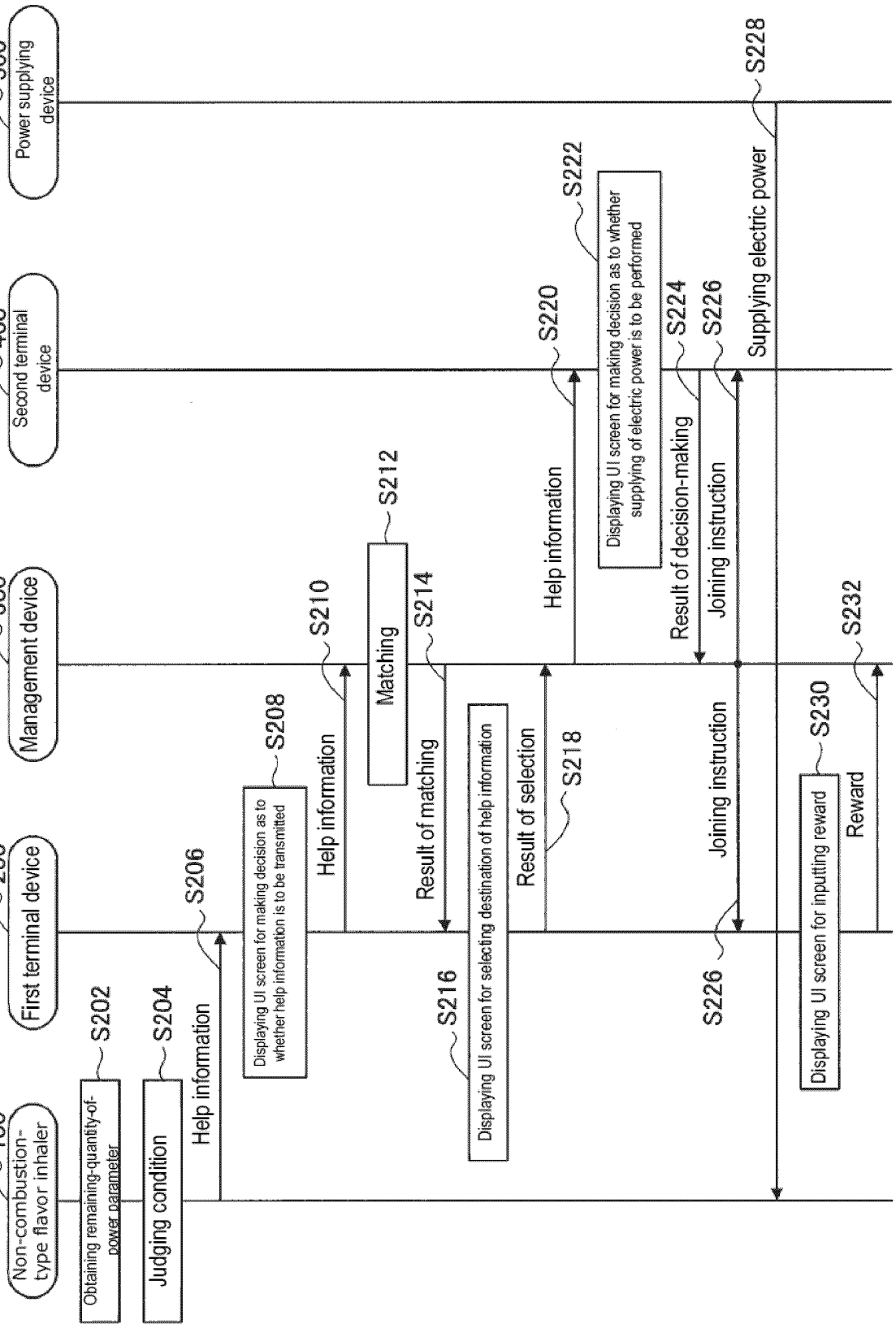

100
Non-combustion-type flavor inhaler
200
First terminal device
300
Management device
400
Second terminal device
500
Power supplying device
S202
Obtaining remaining-quantity-of-power parameter
S204
Judging condition
S206
Help information
S208
Displaying UI screen for making decision as to whether help information is to be transmitted
S210
Help information
S212
Matching
S214
Result of matching
S216
Displaying UI screen for selecting destination of help information
S218
Result of selection
S220
Help information
S222
Displaying UI screen for making decision as to whether supplying of electric power is to be performed
S224
Result of decision-making
S226
Joining instruction
S226
Joining instruction
S228
Supplying electric power
S230
Displaying UI screen for inputting reward
S232
Reward

Fig. 15

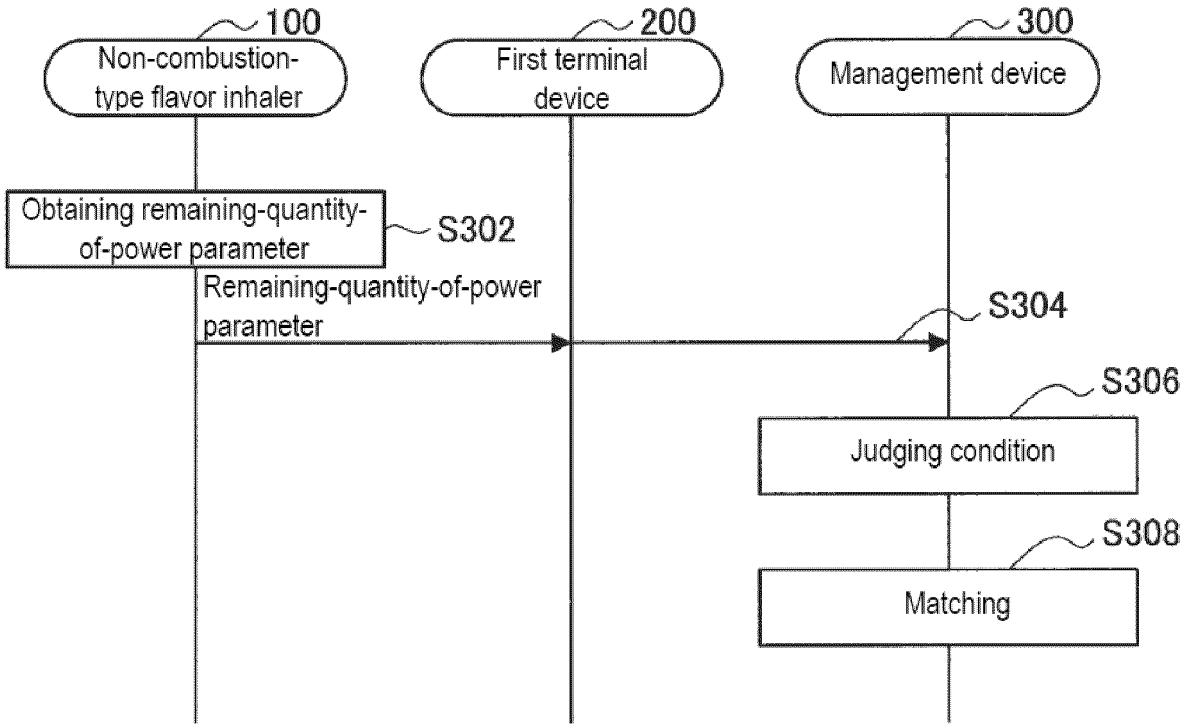

100
Non-combustion-type flavor inhaler
200
First terminal device
300
Management device
Obtaining remaining-quantity-of-power parameter
S302
Remaining-quantity-of-power parameter
S304
S306
Judging condition
S308
Matching

Fig. 16

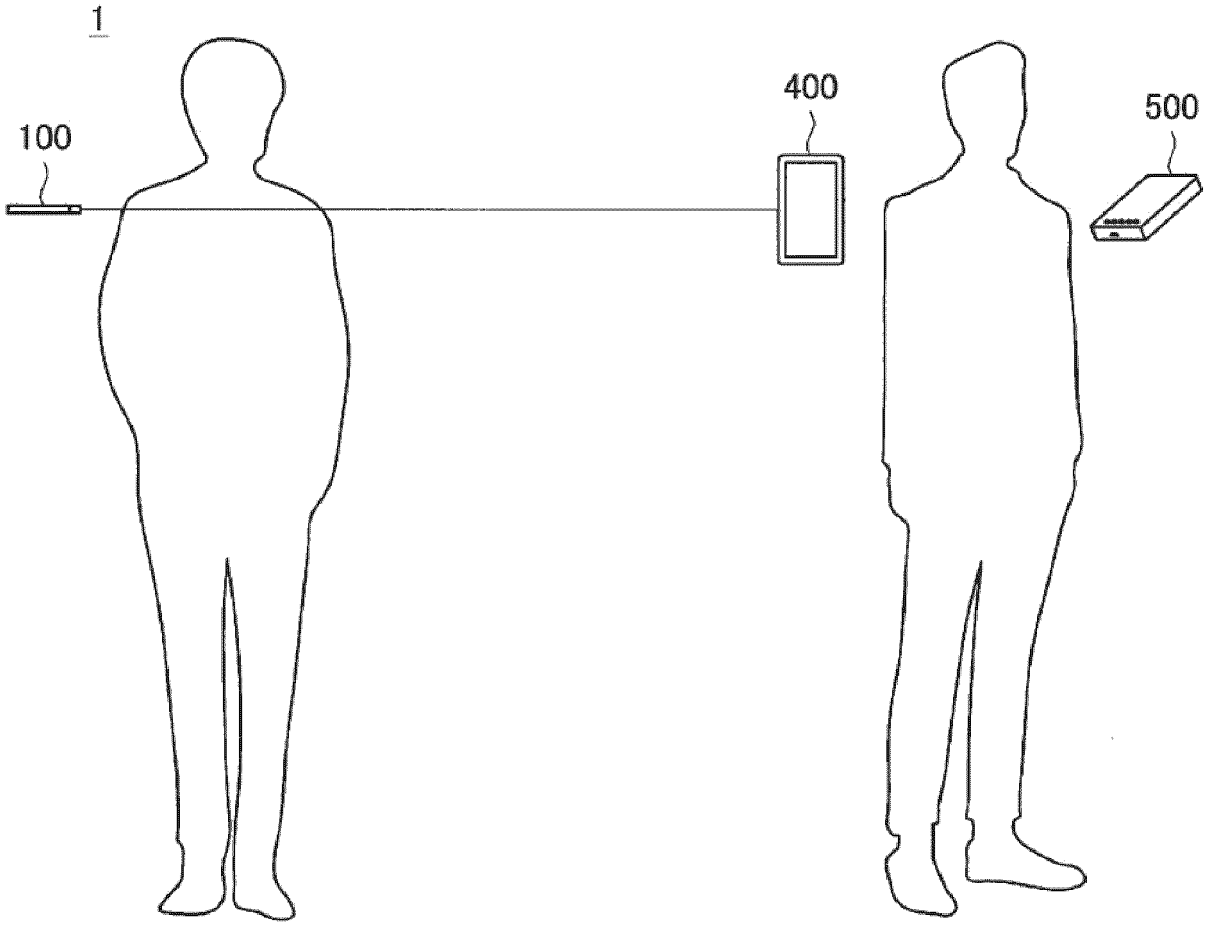


Fig. 17

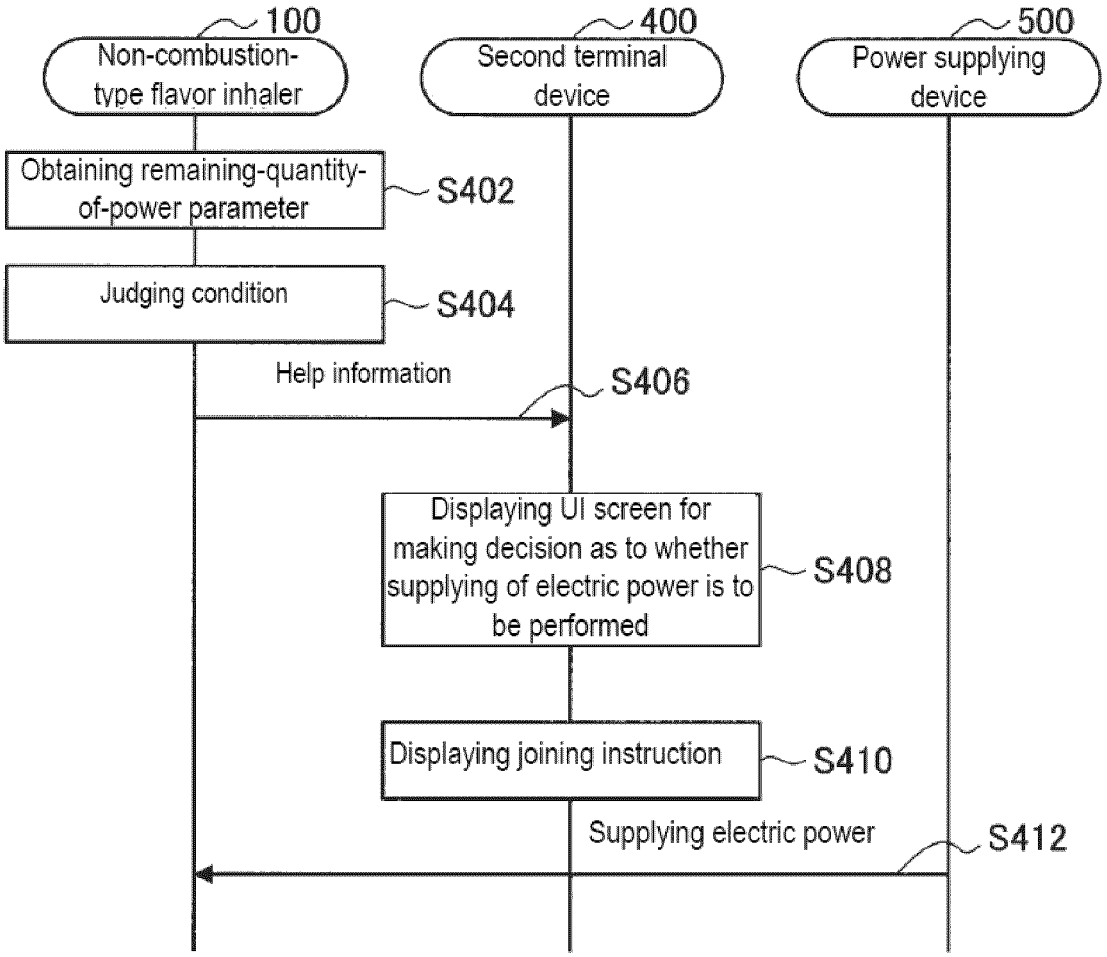

100
Non-combustion-type flavor inhaler
400
Second terminal device
500
Power supplying device
Obtaining remaining-quantity-of-power parameter
S402
Judging condition
S404
Help information
S406
Displaying UI screen for making decision as to whether supplying of electric power is to be performed
S408
Displaying joining instruction
S410
Supplying electric power
S412

Fig. 18

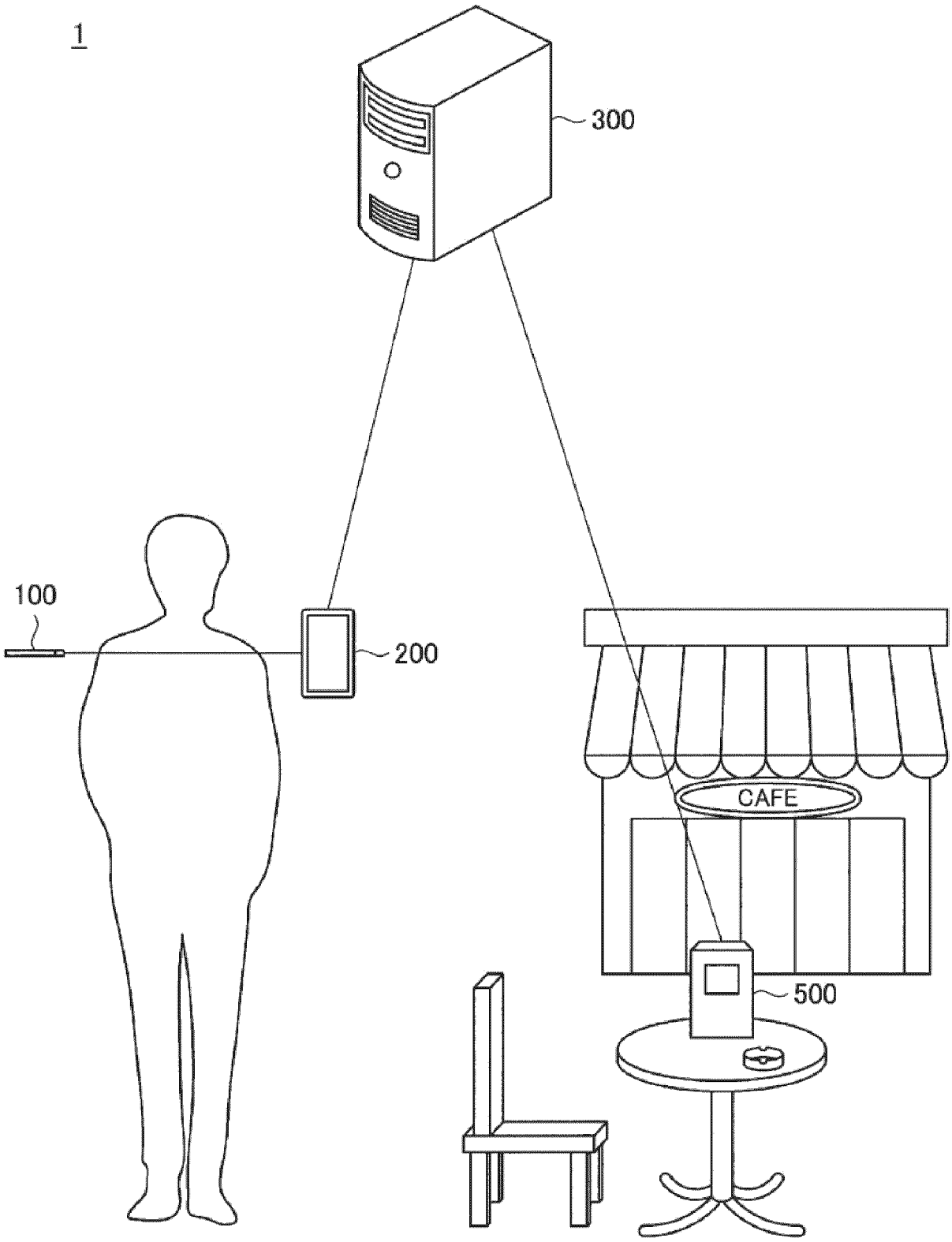


Fig. 19

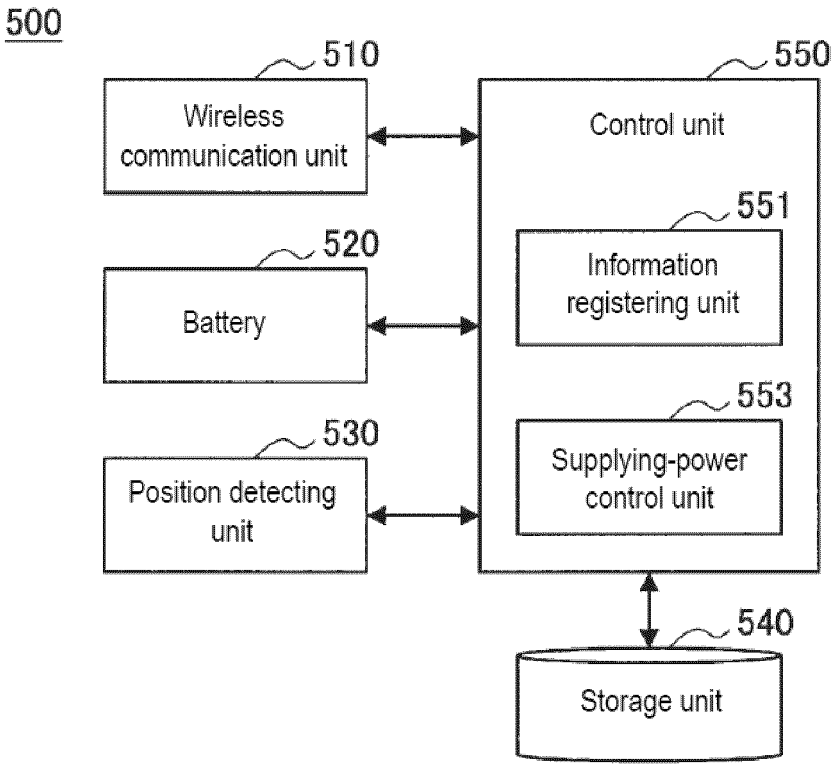
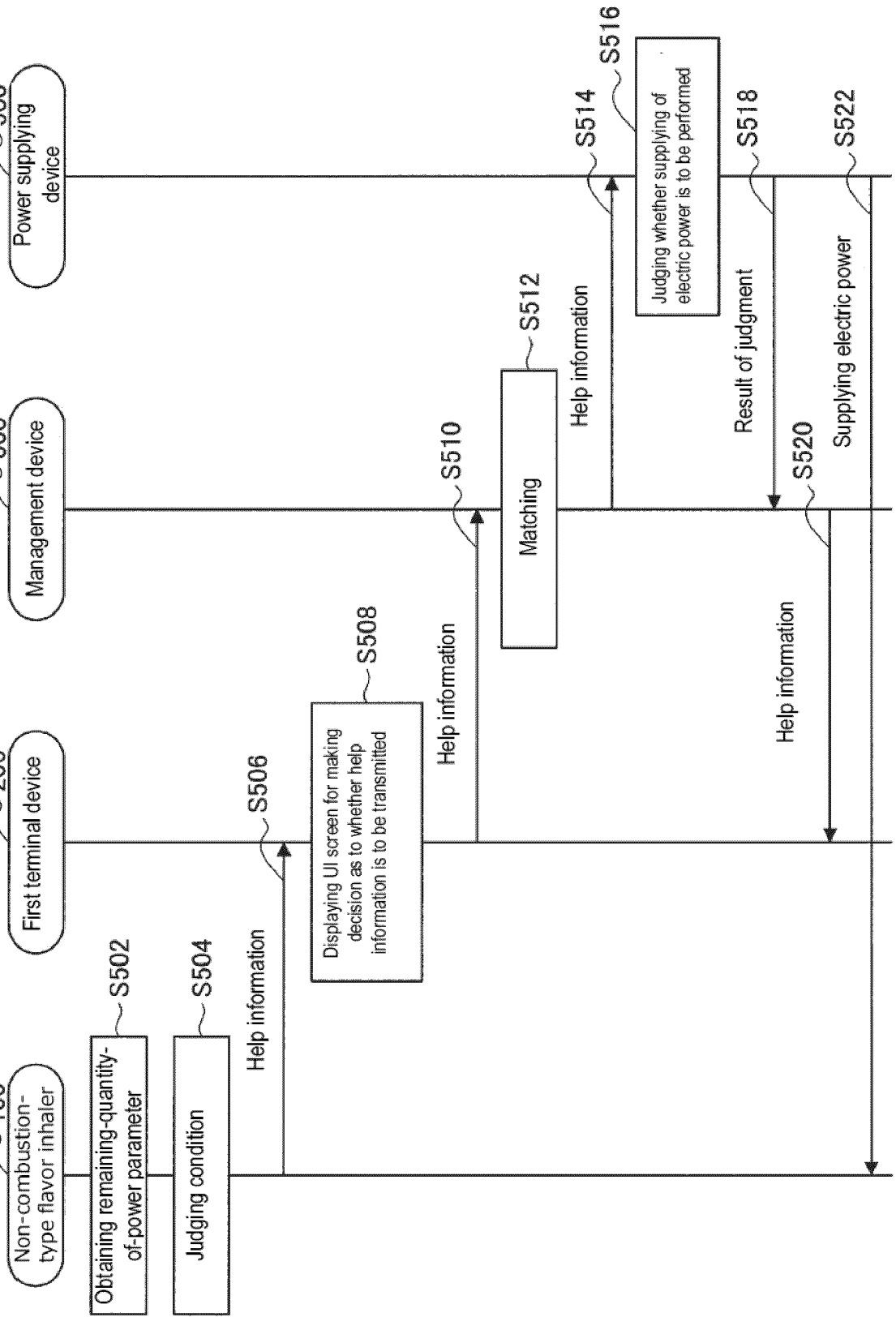

500
510
Wireless communication unit
520
Battery
530
Position detecting unit
550
Control unit
551
Information registering unit
553
Supplying-power control unit
540
Storage unit

Fig. 20


100
Non-combustion-type flavor inhaler
200
First terminal device
300
Management device
500
Power supplying device
S502
Obtaining remaining-quantity-of-power parameter
S504
Judging condition
S506
Help information
S508
Displaying UI screen for making decision as to whether help information is to be transmitted
Help information
S510
Matching
S512
Help information
S514
S516
Judging whether supplying of electric power is to be performed
S518
Result of judgment
S520
Help information
S522
Supplying electric power

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2019/001266

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl. A24F47/00(2006.01)i

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. A24F47/00

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	1971-2019
Registered utility model specifications of Japan	1996-2019
Published registered utility model applications of Japan	1994-2019

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.
X Y	US 2013/0284192 A1 (PELEG, Eyal) 31 October 2013, paragraphs [0038]-[0039], [0061], fig. 7 & WO 2014/199233 A2 & EP 2999367 A2 & KR 10-2016-0060006 A & CN 105848503 A	1-7, 10, 11, 32, 37 1-40
Y	JP 2015-75820 A (NIKON CORP.) 20 April 2015, paragraphs [0056], [0071], [0075]-[0149], fig. 1-18 (Family: none)	1-40

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
20 March 2019 (20.03.2019)	02 April 2019 (02.04.2019)

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.
PCT/JP2019/001266

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2017-512459 A (RAI STRATEGIC HOLDINGS, INC.) 25 May 2017, entire text, all drawings & US 2015/0224268 A1 & WO 2015/120124 A1 & EP 3103085 A1 & CN 106164958 A	1-40
A	US 2014/0107815 A1 (THE SAFE CIG, LLC) 17 April 2014, paragraphs [0060]-[0061] & WO 2014/144802 A1 & CN 104066345 A	1-40
A	JP 2018-521375 A (PHILIP MORRIS PRODUCTS S.A.) 02 August 2018, entire text, all drawings & US 2018/0107989 A1 & WO 2016/173955 A1 & EP 3289548 A1 & CN 107533674 A & KR 10-2017-0140189 A	1-40

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Patent documents cited in the description

- WO 2016187123 A **[0004]**