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(54) **HEATER**

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(57) **ABSTRACT**

Disclosed is a heater capable of supplying heated air to any desired place. The heater includes a heater housing having an air-inflow part and a first air-discharge port, a heating unit disposed in the heater housing to heat air, and a heated-air supply guide connected to the first air-discharge port and guiding heated air discharged through the first air-discharge port 121. The heated-air supply guide has a variable flow channel to change a heated-air supply zone. The heater can perform rapid local heating for a desired place, reduce energy consumption, and improve use convenience.

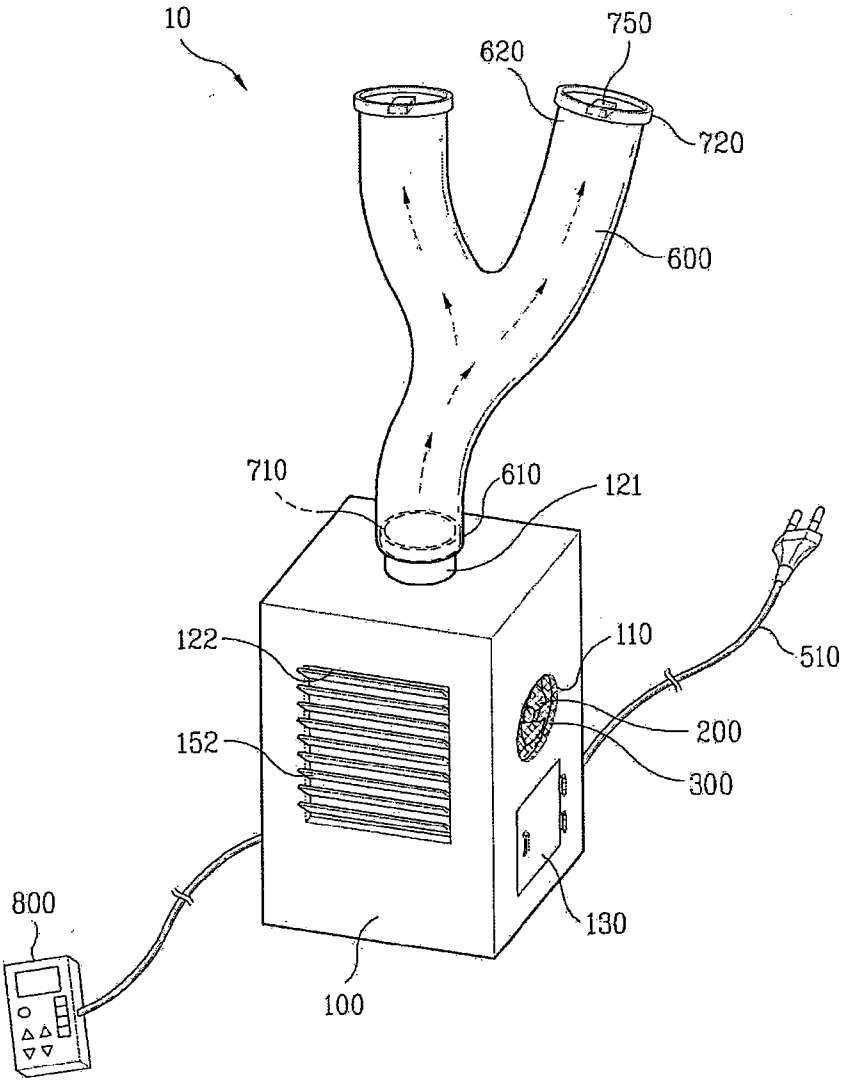


Figure 1

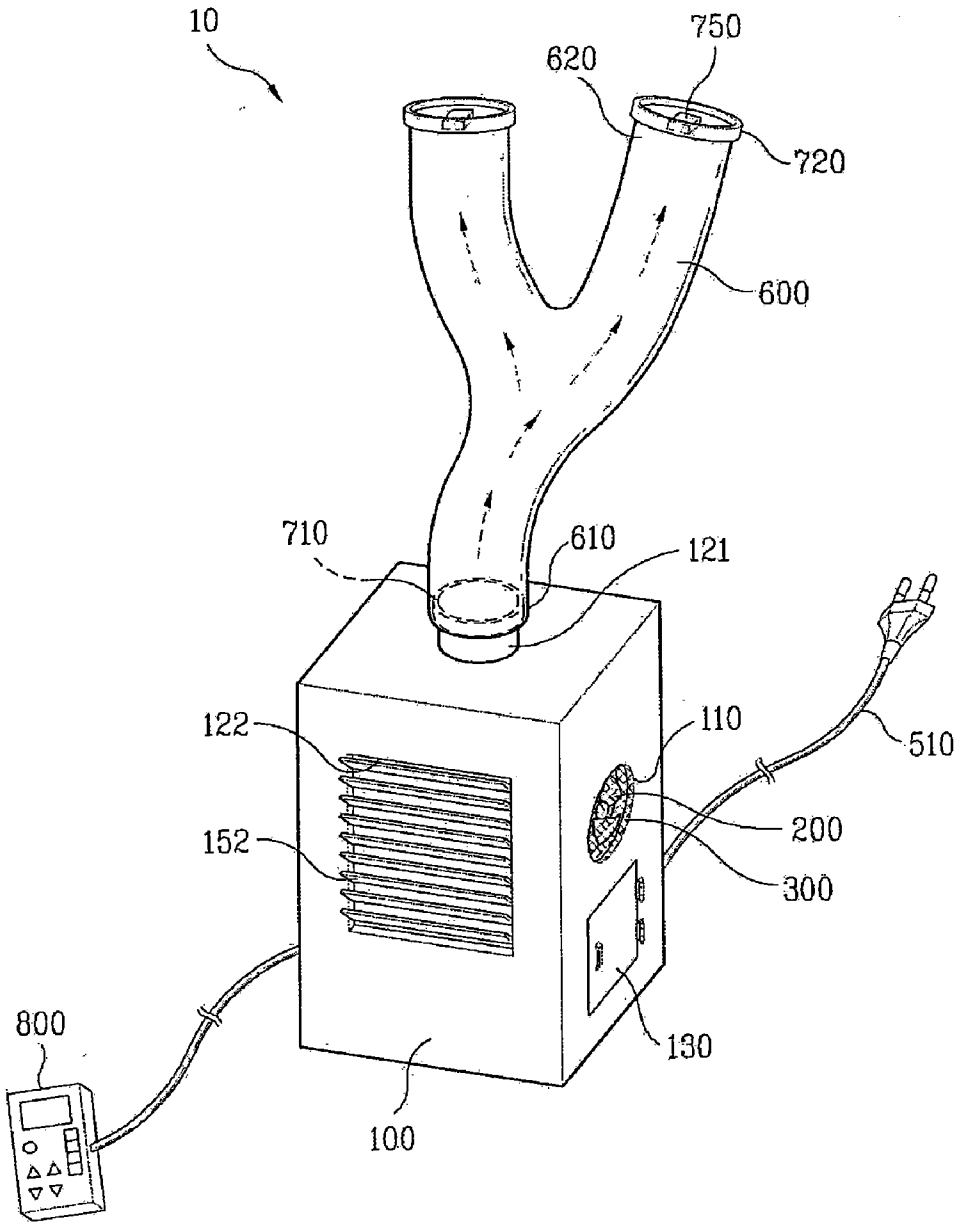
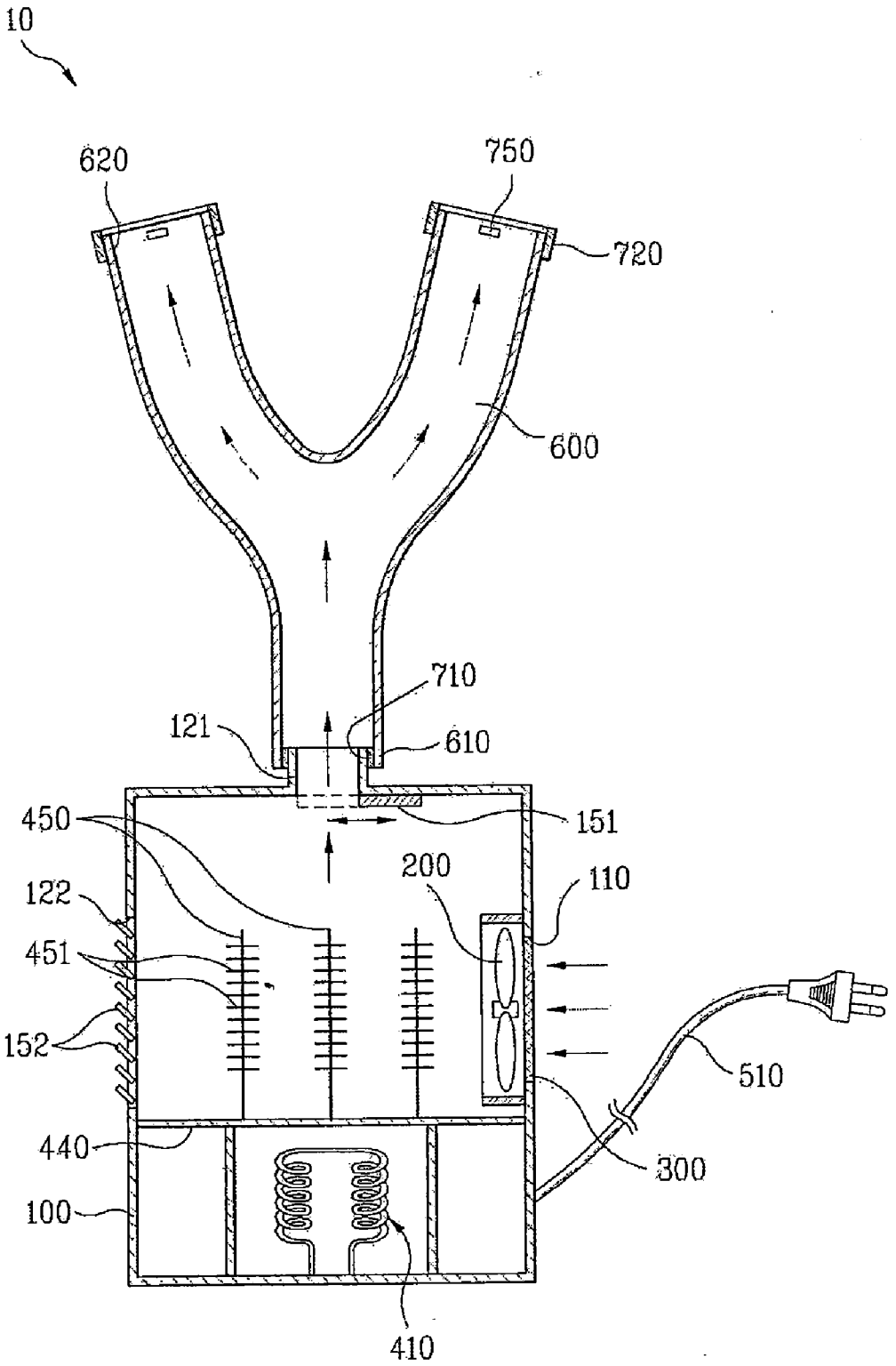

10
750
620
720
600
710
610
121
122
110
510
200
152
300
800
130
100

Figure 2


10
620
750
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600
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121
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151
200
110
122
451
152
510
300
440
100
410

Figure 3

800

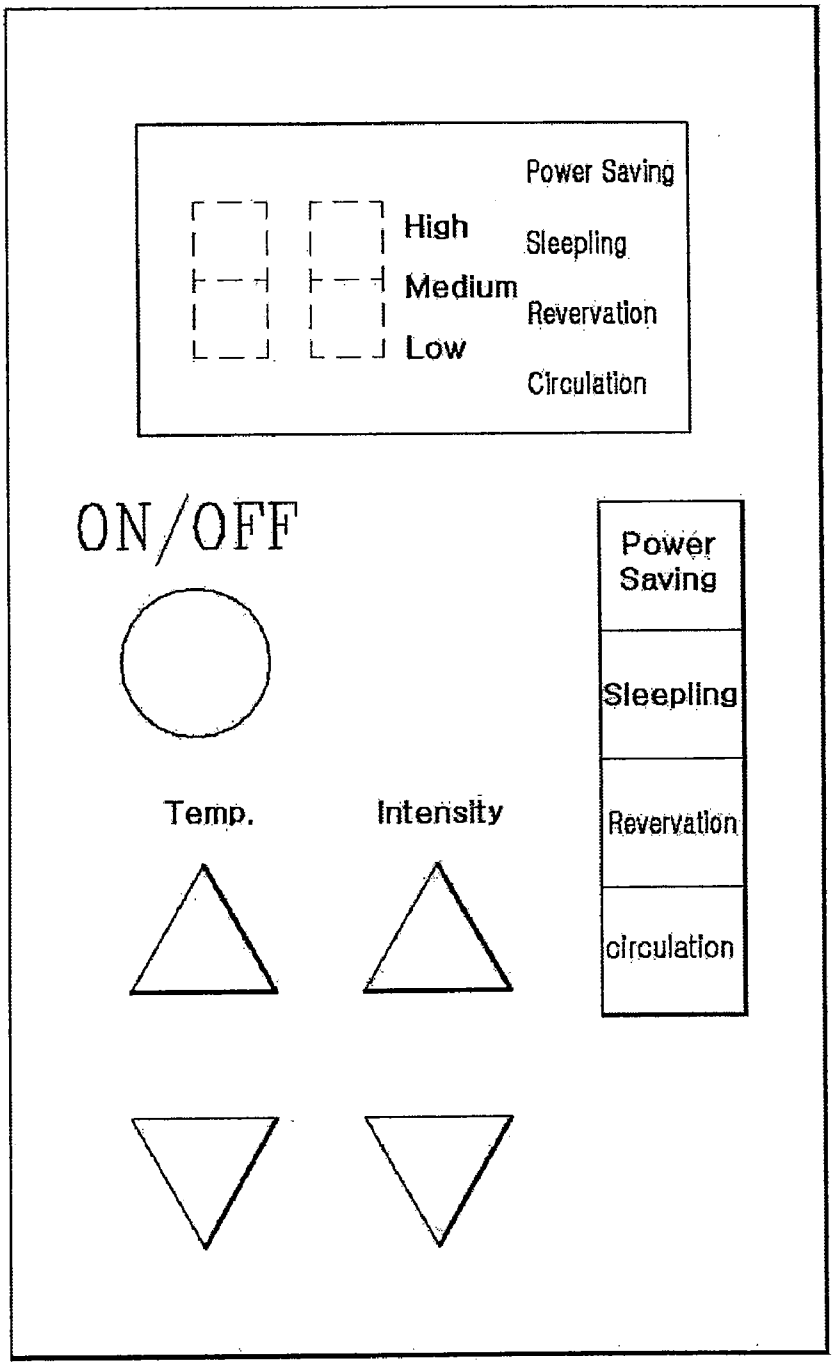
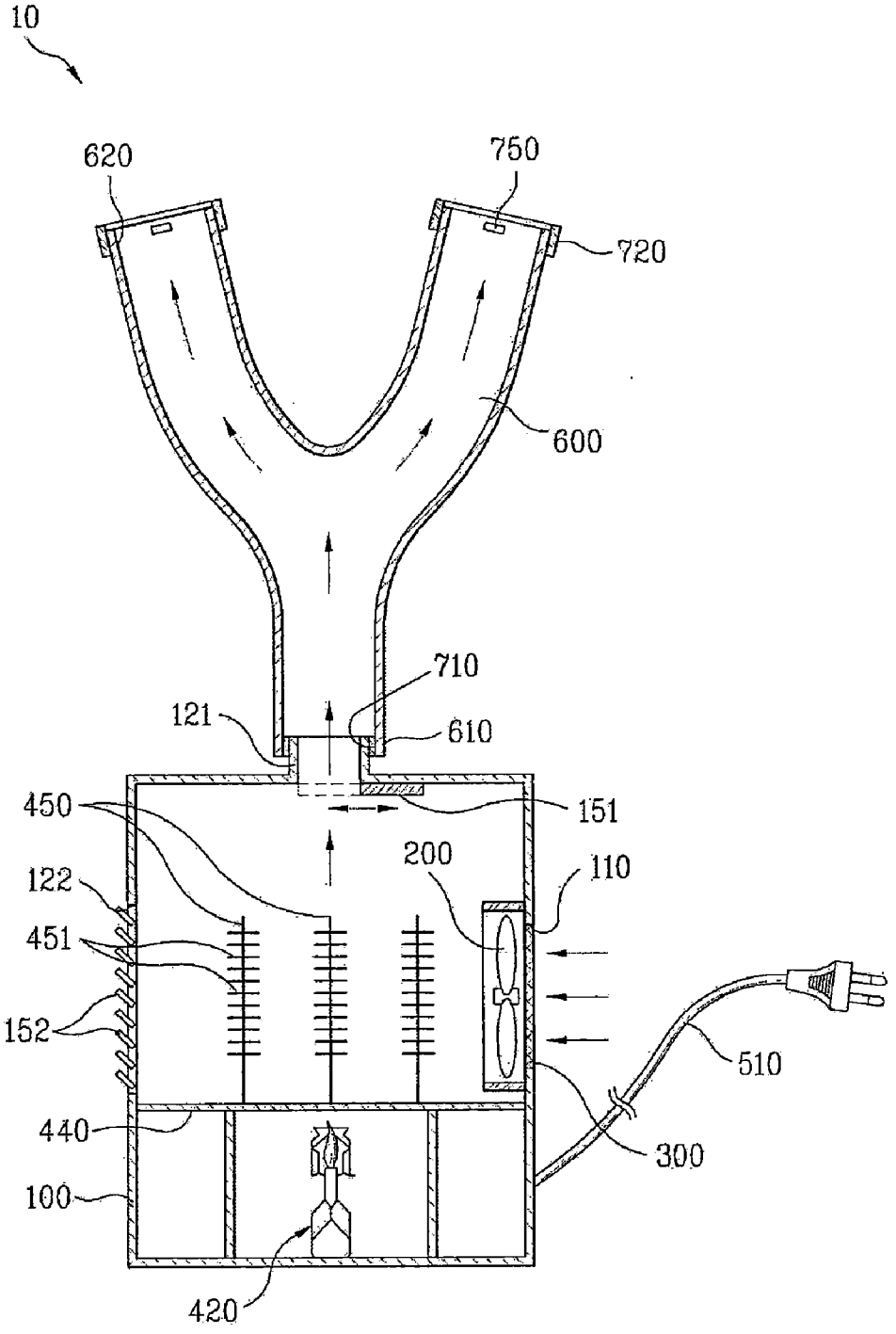

Power Saving
High
Sleepling
Medium
Reservation
Low
Circulation
ON/OFF
Power Saving
Sleepling
Temp.
Intensity
Reservation
circulation

Figure 4


10
620
750
720
600
710
121
610
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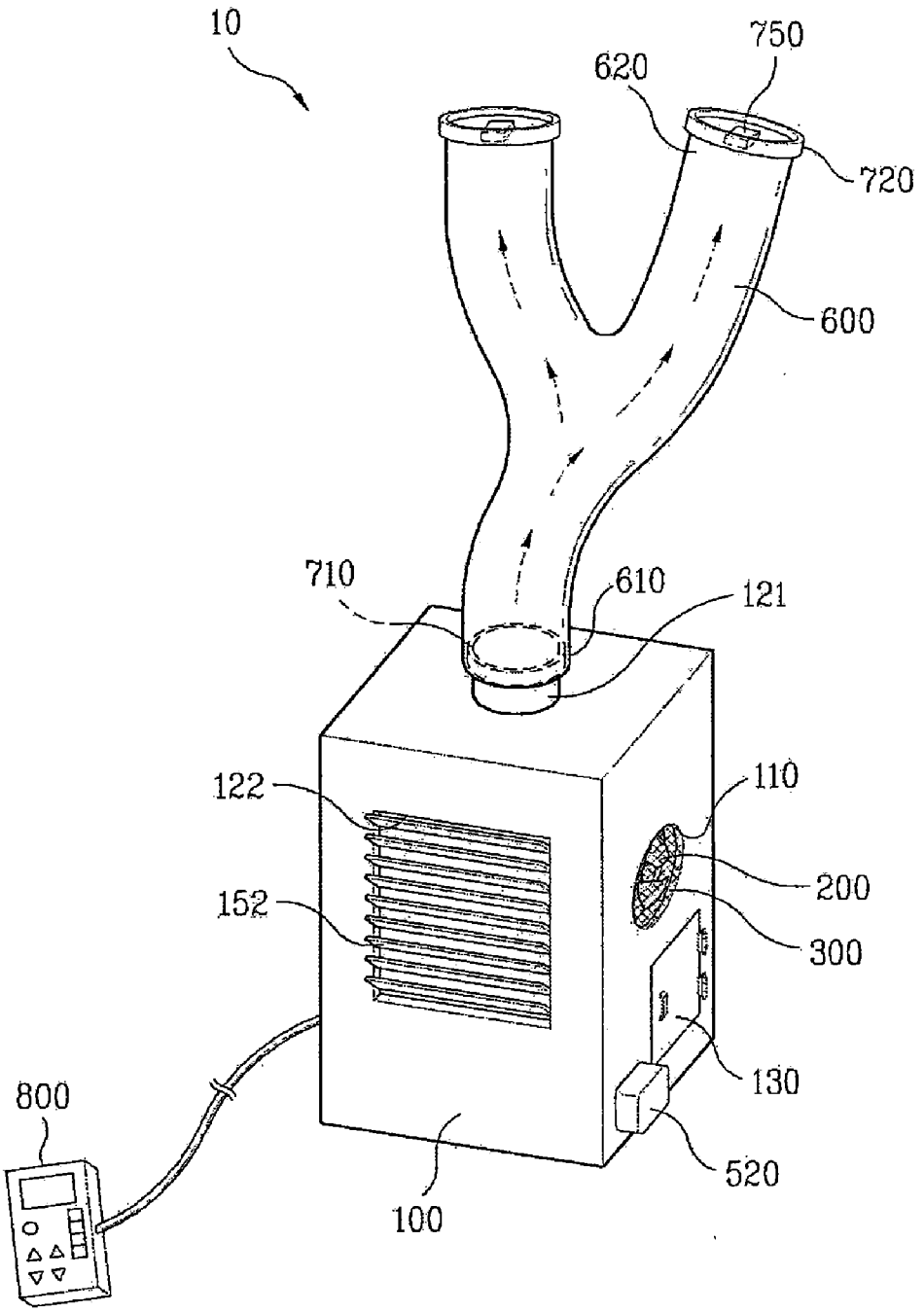
151
200
110
122
451
152
510
440
300
100
420

Figure 5


10
750
620
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600
710
610
121
122
110
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152
300
130
800
520
100

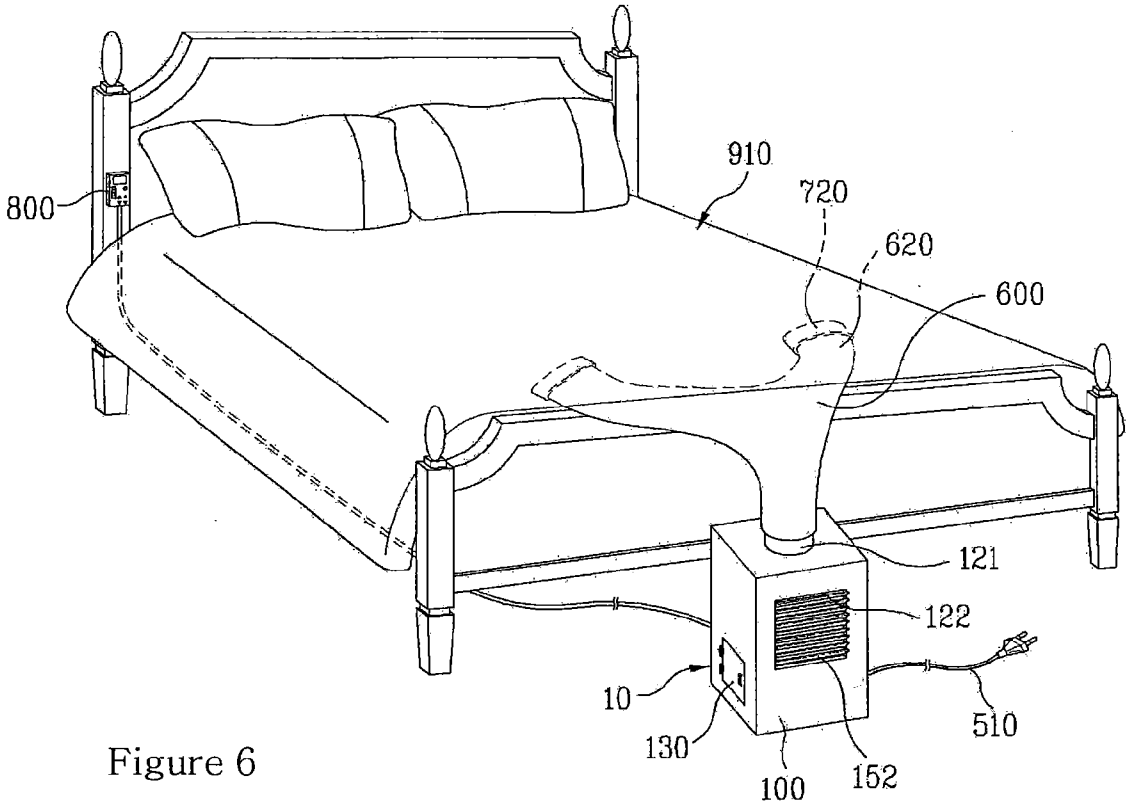

Figure 6

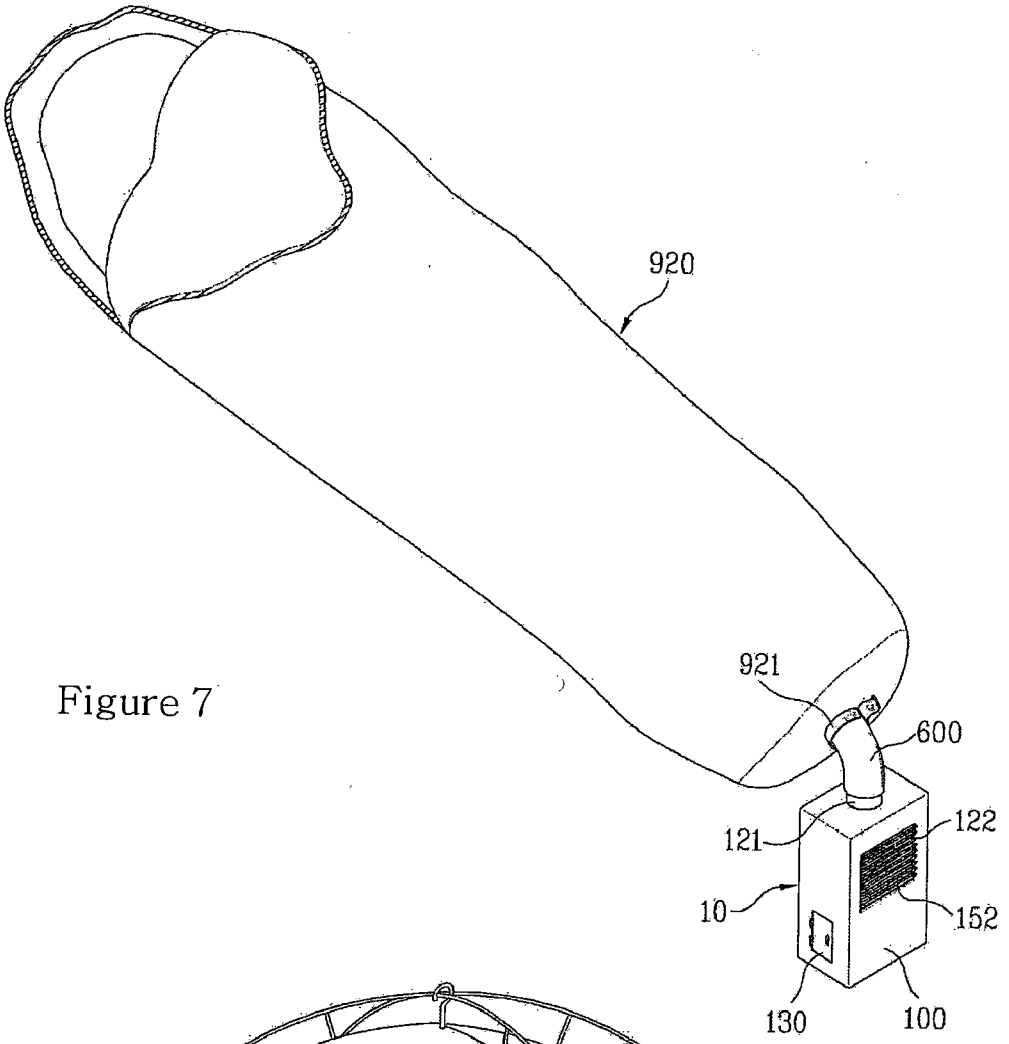

Figure 7

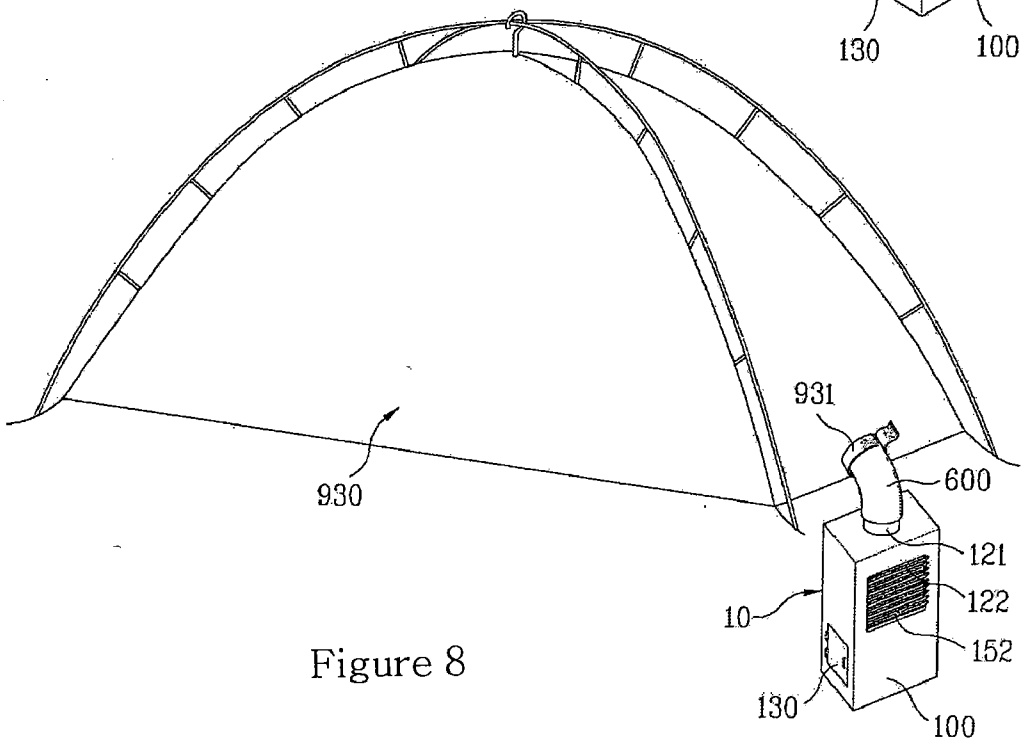

Figure 8

HEATER

PRIORITY CLAIM

[0001] The present application is a National Phase entry of PCT Application No. PCT/KR2009/003375, filed Jun. 23, 2009, which claims priority from Korean Application No. 10-2008-0058768, filed Jun. 23, 2008, the disclosures of which are hereby incorporated by reference herein in their entirety.

FIELD OF THE INVENTION

[0002] The present invention relates to heaters and, more particularly, to a heater that includes a heated-air supply guide to perform rapid local heating by facilitating supply of heated air to a desired place.

BACKGROUND

[0003] Generally, heaters are used for heating a room by supplying heated air thereto and include a heating unit for heating air and a fan for generating a blowing force to supply heated air to the room.

[0004] More specifically, the heater includes a case having an inlet and an outlet, the heating unit, and the fan, wherein the heating unit and the fan are disposed inside the case and driven to draw air from outside of the case and discharge the air heated by the heating unit to the outside, thereby heating an indoor space.

[0005] However, since such a conventional heater has the outlet only on the case, the heater has difficulty in local heating of a desired location or space, although it can perform overall heating based on convection in a room. In other words, although the heater can easily supply heated air to a space in front of the outlet, it is difficult to directly supply the heated air to a place far from the outlet, particularly, to a space deviated from a direction in which the heated air is discharged through the outlet, thereby providing difficulty in heating a desired place.

[0006] In this case, the heater is typically moved to the desired place or operated for a long time to achieve indirect heating of the desired place. As such, since the conventional heater must be moved to make the outlet of the heater facing the desired place or operated for a long time for indirect heating of the desired place, there are problems such as difficulty in movement and repositioning of the heater, increase in energy consumption, and the like.

SUMMARY OF THE INVENTION

[0007] Therefore, the present invention is directed to solving the above and other problems of the related art, and an aspect of the invention is to provide a heater that facilitates rapid local heating of a desired place.

[0008] Another aspect of the invention is to provide a heater that can perform selective local heating only for a target space or a target place, thereby reducing energy consumption.

[0009] A further aspect of the invention is to provide a heater that can be fabricated to a small size and has superior features in terms of mobility, convenience, and maintenance.

[0010] Technical Solution

[0011] In accordance with an aspect of the invention, a heater comprises: a heater housing having an air-inflow part and a first air-discharge port; a heating unit provided in the heater housing for air heating; and a heated-air supply guide connected to the first air-discharge port and guiding heated air discharged through the first air-discharge port, the heated-air supply guide having a variable flow channel to change a heated-air supply zone.

[0012] The heater may further comprise a temperature sensor provided to an outlet of the heated-air supply guide to detect a temperature of the heated air.

[0013] Furthermore, the heater may further comprise an alarm electrically connected to the temperature sensor to warn of a danger caused by overheating.

[0014] And the heater according to the present invention may further comprises an insulation member for preventing heat from being transferred from the first air-discharge port to the coupling part of the heated-air supply guide, wherein the insulation member is provided between the first air-discharge port and the coupling part of the heated-air supply guide and wherein the coupling part being coupled to the first air-discharge port.

[0015] The heated-air supply guide comprises a flexible material for allowing the flow channel to change.

[0016] In the present invention, the heated-air supply guide may further comprise an outlet frame provided to an outlet of the heated-air supply guide.

[0017] The heated-air supply guide comprises one of a non-woven fabric, a cotton fabric, and a natural fabric made from natural fibers.

[0018] It is preferable that the heated-air supply guide is expandable and contractible.

[0019] The heater housing may further comprise a second air-discharge port through which the heated air is discharged to heat a space around the heater housing.

[0020] The heater may further comprise an opening/closing device provided to each of the first and second air-discharge ports of the heater housing.

[0021] In addition, the heater may further comprise a remote controller having a button for manipulation of the heater and display screen that displays an operating state of the heater.

[0022] It is preferable that the heater further comprises a heat sink heating air inside the heater housing, wherein the heat sink is provided in the heater housing and transfers heat from the heating unit to air inside the heater housing.

[0023] The heating unit may comprise one of a coil heater, a heat pipe, and a thermoelectric semiconductor device generating heat upon an electric current.

[0024] The heating unit may comprise a burner that generates heat by combustion of oil or gas.

[0025] The heating unit is separable from the heater housing to be drawn out from the heater housing.

[0026] The heated-air supply guide is detachably connected to the first air-discharge port.

[0027] Advantageous Effects

[0028] According to one embodiment, the heater can change the flow channel of the heated-air supply guide, thereby allowing heated air to be rapidly and easily supplied to a desired place therethrough.

[0029] According to another embodiment, the heater can perform local heating only for a desired zone to thereby reduce energy consumption, and the heated-air supply guide made of a flexible material is detachably connected to the outlet of the heater to thereby allow convenient attachment and maintenance of the heated-air supply guide while facilitating change of the flow channel.

[0030] According to a further embodiment, the heating unit of the heater can be separated from the heater housing to be

used as a separate heat source for cooking or the like, and the heater can be disposed outside a particular zone, such as tents, sleeping bags, and the like, such that heated air can be supplied thereto through the heated-air supply guide of the heater.

DESCRIPTION OF DRAWINGS

[0031] The above and other aspects, features, and advantages of the invention will be more clearly understood from the detailed description of exemplary embodiments taken in conjunction with the accompanying drawings, in which:

[0032] FIG. **1** is a perspective view of a heater according to one embodiment of the present invention;

[0033] FIG. **2** is a cross-sectional view of the heater according to the embodiment of the present invention;

[0034] FIG. **3** is a plan view of a remote controller for the heater according to one embodiment of the present invention;

[0035] FIG. **4** is a cross-sectional view of a heater according to another embodiment of the present invention;

[0036] FIG. **5** is a perspective view of a heater according to a further embodiment of the present invention;

[0037] FIG. **6** is a perspective view of one exemplary application of the heater according to the embodiment of the invention;

[0038] FIG. **7** is a perspective view of another exemplary application of the heater according to the embodiment of the invention; and

[0039] FIG. **8** is a perspective view of a further exemplary application of the heater according to the embodiment of the invention.

DETAILED DESCRIPTION

[0040] Exemplary embodiments of the invention will hereinafter be described in detail with reference to the accompanying drawings. Like components will be denoted by like reference numerals throughout the specification and drawings, and a repetitious description thereof will be omitted herein.

[0041] Referring to FIGS. **1** and **2**, a heater **10** according to one embodiment of the invention includes a heater housing **100**, a heating unit disposed in the heater housing **100**, and a heated-air supply guide **600** connected to the heater housing **100**.

[0042] The heater housing **100** includes at least one air-inflow part **110** through which air is introduced into the heater housing **100** and at least one air-discharge port **121** through which heated air is discharged outside. The heater housing **100** is provided with a fan **200** which drives an air flow and a power supply which supplies electric power for operation of the heating unit. The heated-air supply guide **600** may be detachably connected to the first air-discharge port **121** of the heater housing **100**.

[0043] More specifically, the heater housing **100** is formed with the at least one air-inflow part **110**, the first air-discharge port **121** discharges air heated by the heating unit to the outside, and the heated-air supply guide **600** guides and supplies the heated air discharged through the first air-discharge port **121** to a desired place.

[0044] In this embodiment, the air-inflow part **110** is formed on a rear side of the heater housing **100** and the first air-discharge port **121** is formed on an upper side thereof. However, it should be noted that the invention is not limited to this configuration. Herein, an inlet of the heated-air supply guide **600** is coupled to the first air-discharge port **121**.

[0045] The heater **10** may further include a single or a plurality of second air-discharge ports **122** through which heated air is directly discharged to a space around the heater housing **100**. The second air-discharge port **122** may be, but is not limited to, a grill type discharge port formed on one side of the heater housing.

[0046] Accordingly, the first air-discharge port **121** connected to the heated-air supply guide **600** discharges heated air to a desired heated-air supply zone, while the second air-discharge port **122** directly discharges the heated air outside the housing **100** to heat a space around the housing **100**. It should be understood that the first air-discharge port **121** may also be used to heat the space around the heater housing by separating the heated-air supply guide **600** from the first air-discharge port **121**.

[0047] In other words, the heater according to the embodiment may perform proper local heating only for a desired place through the heated-air supply guide **600** connected to the first air-discharge port **121** of the heater housing **100** and perform heating of an overall indoor space through the second air-discharge port **122** of the heater housing **100**.

[0048] On the other hand, the heater housing **100**, particularly, the first and second air-discharge ports **121**, **122** may be provided with opening/closing devices **151**, **152** to open or close the first and second air-discharge ports **121**, **122**, respectively. Namely, when heated air is discharged, the opening/closing devices **151**, **152** open the first and second air-discharge ports **121**, **122**, respectively, and, when operation of the heater is stopped, the opening/closing devices **151**, **152** close the first and second air-discharge ports **121**, **122**, thereby preventing foreign matter from flowing into the heater housing from the outside.

[0049] The opening/closing devices **151**, **152** may be opened or closed in various manners such as a sliding manner or a rotational manner. In this embodiment, the first air-discharge port **121** is provided with a slidable opening/closing device **151** and the second air-discharge port **122** is provided with a rotational opening/closing device **152**. However, it should be noted that the invention is not limited thereto. Alternatively, the first air-discharge port **121** may be provided with a rotational opening/closing device and the second air-discharge port **122** is provided with a slidable opening/closing device. Otherwise, both the first and second air-discharge ports **121**, **122** may be opened or closed by the same type of opening/closing devices.

[0050] When both the first and second air-discharge ports **121**, **122** are opened by the opening/closing devices **151**, **152**, both heating of a particular zone through the heated-air supply guide **600** and heating of the space around the heater housing through the second air-discharge port **122** may be performed at the same time.

[0051] For example, with the heated-air supply guide **600** disposed under a blanket or sheet, the heater **10** may supply heated air into the blanket or sheet covering a user, so that the heated air can be rapidly and efficiently supplied to the user and allow the user to feel warm with a small amount of heated air.

[0052] Here, the heated-air supply guide **600** may be positioned to supply the heated air towards the feet of the user, that is, the lower half of the user's body, under the blanket or sheet. In other words, since a person's body has a higher body temperature at the upper half of the body than at the lower half

thereof, supplying the heated air towards the lower half of the body allows the user to feel warm in a short time and balances the body temperature of the user to facilitate blood circulation in the whole body and promote metabolism. Furthermore, when the heated air is supplied to the lower half of the body of the user, the sympathetic nerve mainly distributed in the lower half of the body is relaxed, thereby allowing the user to maintain a suitable body temperature and to feel warm more rapidly.

[0053] On the other hand, the fan **200** may be provided to the air-inflow part **110** of the heater housing **100** or to the first and second air-discharge ports **121**, **122**. The second air-discharge port **122** and the air-inflow part **110** may be formed on adjacent sides of the heater housing **100** or may be formed on opposite sides thereof.

[0054] In the heater housing **100**, a filter **300** may be provided to at least one of the air-inflow part **110**, the first air-discharge port **121** and the second air-discharge port **122** to separate foreign matter from air flowing into the heater housing. Advantageously, the filter **300** is provided to the air-inflow part **110** of the heater housing **100**.

[0055] When the filter **300** is provided to the first air-discharge port **121** or the second air-discharge port **122**, there is a problem in that foreign matter contained in air flowing into the heater housing **100** through the air-inflow part **110** of the heater housing **110** can infiltrate components of the heater while floating within the heater housing **100**.

[0056] Therefore, the filter **300** is provided to the air-inflow part **110** to remove foreign matter from air flowing into the heater housing, thereby supplying more fresh heated air to a user while preventing the foreign matter from entering the heater housing **100**. Although not clearly shown in the drawings, various filters, such as a UV lamp or the like, instead of a filter composed of a porous material may be used as the filter **300**.

[0057] On the other hand, the heating unit may include, but is not limited to, a coil heater **410**, which is applicable to an electric heater, as shown in FIG. **2**. In other words, the coil heater **410** is disposed inside the heater housing **100** and heats air sucked into the heater housing **100** by the fan **200** when electric power is supplied to the coil heater **410** through the power supply. Then, the air heated by the coil heater **410** is supplied to a particular desired zone through the first air-discharge port **121** and the heated-air supply guide **600** by a blowing force of the fan **200** while being supplied to a space around the heater housing **100** through the second air-discharge port **122**.

[0058] Here, the coil heater **410** may be adapted to heat air, which is introduced into the heater housing **100**, in an indirect manner. In other words, the coil heater **410** heats the air via another heat transfer medium rather than directly contacting the air.

[0059] If the coil heater **410** directly heats the air introduced into the heater housing **100**, the air can be overheated, possibly causing a fire or a burn accident and can be discharged in an excessively dry state.

[0060] To prevent such problems, the heater **10** according to this embodiment may further include a heat sink **450** disposed inside the heater housing **100** to receive heat from the coil heater **410** via heat conduction and emit the heat for heating the air introduced into the heater housing **100**.

[0061] The heat sink **450** is isolated from the coil heater **410** by a partition plate **440** and heats air using heat transferred from the coil heater **410** thereto via heat conduction. Further, although it is isolated from the coil heater **410**, the heat sink **450** is connected to the coil heater **410** via a certain component having high thermal conductivity, such as a heat pipe and the like, thereby improving thermal conductivity and heat dissipation.

[0062] In other words, with the partition plate **440** disposed above the coil heater **410**, the heat sink **450** made of a material having high thermal conductivity is disposed on an upper side of the partition plate **440**, whereby air introduced into the heater housing is heated by the heat sink **450** using heat transferred thereto from the coil heater **450** through the partition plate **440** via heat conduction. Here, the heat sink **450** may be provided with a heat dissipation fin **451** to increase a heat exchange area with air.

[0063] Accordingly, air flowing into the heater housing **100** is not directly heated by the coil heater **410**, but is indirectly heated by the heat sink **450** isolated from the coil heater **410**, so that overheating and drying of the air, a fire, and a burn accident can be prevented.

[0064] Alternatively, the heating unit may include an oil or gas burner **420**, as shown in FIG. **4**. If the heating unit includes the oil or gas burner **420**, the heater housing may be provided with a purifier that purifies toxic substances contained in a combustion gas which is generated during combustion of oil or gas.

[0065] Further, when the heating unit includes the burner **420**, the heat sink **450** made of a material having high thermal conductivity may be disposed above the burner **420** to be isolated therefrom by the partition plate **440** or the like, whereby air flowing into the heater housing **100** can be indirectly heated by the heat sink **450**, to which heat is transferred from the burner **420** via the partition plate, instead of being directly heated by the burner **420**.

[0066] The heating unit, particularly, the burner **420**, may be detachably mounted to the heater housing **100** to be drawn out from the heater housing **100**. This allows the burner **420** to be used as a separate heat source for various applications.

[0067] In other words, when a user heats a room using the heater **10** according to this embodiment, the burner **420** is mounted to the heater housing **100** and used as the heating unit of the heater, and when the user employs the heater **10** for cooking or direct heating, the burner **420** is detached from the heater housing **100** and used for the desired purpose.

[0068] Here, the heater housing **100** may be provided at one side thereof with a door **130** (see FIG. **1**) to minimize or prevent heat loss of the heating unit and to permit attachment/detachment of the burner **420** with respect to the housing **100**.

[0069] The door **130** may have a variety of configurations, such as hinge type doors, slidable doors, etc., and may be provided with a gripper to facilitate opening/closing of the door **130**.

[0070] The power supply may include a power line **510** for connection with an external power source that supplies electric power to components of the heater **10**, such as the fan **200** and the heating unit, which require supply of electricity for operating the heater **10**. The power line **510** may be integrally or detachably connected at one end thereof to the heater housing **100**.

[0071] It should be understood that the power supply may include a battery **520** inside the heater housing **100**, as shown in FIG. **5**, for convenience of use. The battery may be a rechargeable battery detachably inserted into the housing **100**.

[0072] As the power supply, both the power line **510** and the rechargeable battery **520** may be provided to the housing **100** such that one of them can be used as the power supply or the rechargeable battery **520** can be charged by power supplied through the power line **510** according to use of the heater.

[0073] The heated-air supply guide **600** may define a variable flow channel defined to change a heated-air supply zone. The heated-air supply guide **600** includes a coupler **610** disposed at an inlet of the heated-air supply guide **600** and connected to the first air-discharge port **121** of the heater housing **100**, and at least one outlet **620** through which heated-air flowing into the heated-air supply guide **600** through the coupler **610** is discharged outside.

[0074] For example, the heated-air supply guide **600** may be partially or entirely formed of the flexible material to permit change of the flow channel.

[0075] More specifically, the heated-air supply guide **600** may be formed of fibrous materials, for example, non-woven fabrics, cotton fabrics, or other natural fabrics made from natural fiber. Here, the heated-air supply guide may be formed of an environmentally friendly natural fabric. It should be understood that the heated-air supply guide may also be formed of synthetic fibers.

[0076] The heated-air supply guide **600** may be expandable and contractible. More specifically, the heated-air supply guide **600** may be a bellows member formed of a heat resistant material. Accordingly, the heated-air supply guide **600** provides various merits, such as easy manipulation and maintenance, freely adjustable length, and the like.

[0077] Therefore, the heated-air supply zone may be set by changing the flow channel of the heated-air supply guide **600** as needed, so that heated air can be properly supplied to any desired place through the heated-air supply guide **600**.

[0078] Further, as shown in FIGS. **1**, **2**, **4**, and **5**, the heated-air supply guide **600** may include a plurality of outlets **620** to allow heated air discharged from the first air-discharge port **121** of the heater housing **100** to be simultaneously supplied to various zones therethrough. Therefore, the heater according to this embodiment can supply the heated air to a plurality of desired heated-air supply zones.

[0079] The outlet **620** of the heated-air supply guide **600** may be provided with a temperature sensor **750** which detects the temperature of heated air. That is, operation of the fan **200** and the heating unit can be adjusted according to the temperature detected by the temperature sensor **750** to adjust the temperature and an amount of heated air supplied through the heated-air supply guide **600**.

[0080] Although not shown in the drawings, the heater **10** according to the embodiment may be provided with an alarm connected to the temperature sensor **750** to warn of danger, for example, a fire or the like, which can occur due to excessive heating.

[0081] For example, the alarm may warn of an excessively heated state of air using an alarm light, sound or letter when the temperature of the heated air detected by the temperature sensor **750** exceeds a predetermined value.

[0082] The coupler **610** of the heated-air supply guide **600** is detachably connected to the first air-discharge port **121** of the heater housing **100**. For example, Velcro fasteners are provided to an outer peripheral surface of the first air-discharge port **121** and an inner peripheral surface of the coupler **610** of the heated-air supply guide **600** corresponding the outer peripheral surface such that the heated-air supply guide **600** can be connected to or disconnected from the first air-discharge port **121** of the heater housing **100**.

[0083] Although not shown in the drawings, any other elements, such as magnets, screws or the like, may be applied instead of the Velcro fasteners in order to allow the coupler **610** of the heated-air supply guide **600** to be detachably connected to the first air-discharge port **121** of the heater housing **100**.

[0084] Here, the heater may further include an insulation member **710** between the first air-discharge port **121** of the heater housing **100** and the coupler **610** of the heated-air supply guide **600** to prevent or minimize heat transfer therebetween. Namely, the insulation member **71** composed of a material having low thermal conductivity is interposed for insulation between the first air-discharge port **121** of the heater housing **100** and the coupler **610** of the heated-air supply guide **600**, thereby preventing heat from being transferred from the first air-discharge port **121** of the heater housing **100** to the coupler **610** of the heated-air supply guide **600**.

[0085] On the other hand, the outlet **620** of the heated-air supply guide **600** may be provided with an outlet frame **720** that defines the outlet **620**. In other words, the outlet frame **720** is provided to the outlet **620** of the heated-air supply guide **600**, thereby forming an opening which defines the outlet **620**.

[0086] The outlet frame **720** ensures an area for discharging heated air and has a predetermined weight so as to prevent the heated-air supply guide **600** from sliding down when the outlet **620** of the heated-air supply guide **600** is positioned higher than the air-discharge port **121** of the heater housing **100**.

[0087] When the heated-air supply guide **600** is made of a flexible material, the outlet **620** of the heated-air supply guide **600** can be compressed and clogged by an external obstacle. Therefore, the outlet frame **720** such as a wire ring, a metal ring or a plastic ring is provided to the outlet **620** of the heated-air supply guide **600** not only to maintain the outlet **620** of the heated-air supply guide **600** in a predetermined shape, but also to prevent the outlet **620** from being clogged so as to allow heated air to be smoothly supplied therethrough.

[0088] On the other hand, as shown in FIGS. **1** and **5**, the heater **10** according to this embodiment may further include a remote controller **800**. That is, the remote controller **800** is connected to the heater housing **100**, particularly, to a controller (not shown) of the heater via wire connection, thereby enabling convenient remote control of the heater **10** or easy monitoring of an operating state of the heater **10**.

[0089] To this end, the remote controller **800** may include operation buttons for controlling the components of the heater **10**, such as the fan **200**, the heating unit, and the like, and a display screen for displaying operation and manipulation states of the heater **10**.

[0090] With this configuration, a user can easily monitor the temperature and intensity of heated air, an operation mode of the heater, and the like on the display screen of the remote controller **800**, and can easily manipulate ON/OFF of the heater **10**, the temperature and intensity of heated air, the operation mode of the heater, and the like using the operation buttons.

[0091] Further, the remote controller **800** may have a program embedded therein to perform temperature control of heated air in various operation manners. For example, when a sleeping operation program is embedded in the remote controller **800**, the remote controller **800** may perform the tem-

perature control according to a sleeping cycle of a user. That is, when the user selects the sleeping operation program, the remote controller **800** raises the temperature of heated air during an initial sleeping period of the user to rapidly provide warmth to the user and lowers the temperature of the heated air after a predetermined period of time to maintain the warmth while the user sleeps.

[0092] Although not shown in detail, the remote controller **800** may be connected to the heater via wireless connection and may be detachably mounted on an outer surface of the heater housing **100** that defines an appearance of the heater **10**. Further, according to one embodiment of the invention, the heater **10** may further include a gripper and a wheel for convenient movement and carrying of the heater **10**.

[0093] Next, exemplary practical applications of the heater according to the embodiments will be described with reference to FIGS. **6** to **8**.

[0094] When the heater **10** is used in an indoor space, both the power line **510** and the rechargeable battery **520** may be used as the power supply, and when the heater **10** is used in an outdoor space, the rechargeable battery **520** may be used as the power supply.

[0095] More specifically, referring to FIG. **6**, when a user wants to supply heated air into a blanket on a bed **910** in a room, the heater **10** is operated via the remote controller **800**, with the outlets **620** of the heated-air supply guide **600** positioned near the foot of the bed **910**. Then, heated air is discharged through the first air-discharge port **121** of the heater housing **100** and is supplied towards the foot of the bed **910** through the outlets **620** of the heated-air supply guide **600**, thereby performing rapid and convenient heating of a target zone.

[0096] In this case, when the heater **10** is operated with the outlets **620** of the heated-air supply guide **600** disposed under the blanket covering the user, the user can more rapidly feel warm. Thus, the heater **10** according to this embodiment can perform heating more efficiently while reducing energy consumption, as compared with heating the overall space of the room to a predetermined temperature or more.

[0097] For example, the heater **10** can supply heated air into a blanket or sheet covering a user on the bed **910** with the heated-air supply guide **600** of the heater **10** disposed under the blanket or sheet, so that the heated air can be rapidly and efficiently supplied to the user so as to allow the user to feel warm with a small amount of heated air.

[0098] Here, although not shown in detail, when a person lies under a blanket or sheet on the bed **910**, an air channel is formed to allow heated air to be supplied therethrough towards a zone, on which the feet of the person are placed, thereby supplying the heated air to the lower half of the person's body, particularly, towards the feet of the person. In this case, if a foot board of the bed **910** is formed with a separate connector which can communicate with the air channel of the heater **10**, the heated-air supply guide **600** of the heater **10** may be connected to the connector of the foot board to supply the heated air into the connector. Here, the remote controller **800** of the heater **10** may be positioned at a headside of the bed **910** to allow the person to easily control operation of the heater **10**.

[0099] According to this embodiment of the invention, desired local heating can be achieved through the heated-air supply guide of the heater, thereby enabling rapid and efficient heating and realizing size reduction of the heater through replacement of conventional large capacity heaters with a low capacity heater.

[0100] Further, referring to FIG. **7**, when a user desires to receive heated air in a particular zone, for example, within a sleeping bag **920** in an outdoor space, the heater **10** is positioned at a place spaced from the sleeping bag **920** and is operated after a connector **921** of the sleeping bag **920** is connected to the outlet **620** of the heated-air supply guide **600**. Then, heated air discharged from the first air-discharge port **121** of the heater housing **100** is supplied into the sleeping bag **920** through the outlet **620** of the heated-air supply guide, thereby performing rapid and efficient heating inside the sleeping bag **920**. Here, the connector **921** of the sleeping bag **920** may be connected to the outlet of the heated-air supply guide **600** via the aforementioned Velcro fasteners or the like.

[0101] Further, referring to FIG. **8**, when a user desires to heat the inside of a tent **930** disposed in an outdoor space, the heater **10** is positioned at a place spaced from the tent **930** and is operated after a connector **931** of the tent **930** is connected to the outlet **620** of the heated-air supply guide **600**. Then, heated air discharged from the first air-discharge port **121** of the heater housing **100** is supplied into the tent **930** through the heated-air supply guide **600**, thereby providing rapid and efficient heating inside the tent **930**.

[0102] The heater **10** can also be used for heating inside the tent **930**. In this case, however, there is a likelihood of a fire or a burn accident. Thus, it is desirable that the heater **10** be positioned outside a particular zone, for example, outside the tent or the sleeping bag, where heating is demanded, in order to improve utility of an inner space of the tent **930** and prevent a fire.

[0103] Although some embodiments have been provided to describe the invention, it will be apparent to those skilled in the art that various modifications, changes, and substitutions can be made without departing from the scope and spirit of the invention, and that the embodiments are given by way of illustration only and do not limit the scope of the invention. Accordingly, the scope of the invention should be limited only by the accompanying claims and equivalents thereof.

[0104] The heater according to the embodiments of the invention has various advantages including the following.

[0105] Firstly, the heater can rapidly and easily supply heated air to a desired place through the heated-air supply guide.

[0106] Secondly, the heater can perform selective local heating only for a desired space, thereby reducing energy consumption.

[0107] Thirdly, the heated-air supply guide of the heater is detachably connected to the outlet of the heater housing and is made of a flexible material to facilitate change of a flow channel, thereby enabling convenient attachment and maintenance of the heated-air supply guide and supply of heated air to various zones in several directions.

[0108] Fourthly, the heater has a simple structure and is configured to permit convenient attachment and maintenance of the heated-air supply guide, thereby improving mobility and use convenience of the heater.

[0109] Fifthly, the heating unit of the heater is separable from the heater housing to be used as a separate heat source for cooking or the like and to prevent a fire or a burning accident from occurring when the heater is positioned inside a particular zone.

1. A heater comprising:
a heater housing having an air-inflow part and a first air-discharge port;
a heating unit provided in the heater housing for air heating; and
a heated-air supply guide connected to the first air-discharge port and guiding heated air discharged through the first air-discharge port, the heated-air supply guide having a variable flow channel to change a heated-air supply zone.

2. The heater according to claim **1**, further comprising:
a temperature sensor provided to an outlet of the heated-air supply guide to detect a temperature of the heated air.

3. The heater according to claim **2**, further comprising:
an alarm electrically connected to the temperature sensor to warn of a danger caused by overheating.

4. The heater according to claim **1**, further comprising:
an insulation member for preventing heat from being transferred from the first air-discharge port to the coupling part of the heated-air supply guide, wherein the insulation member is provided between the first air-discharge port and the coupling part of the heated-air supply guide and wherein the coupling part being coupled to the first air-discharge port.

5. The heater according to claim **1**, wherein the heated-air supply guide comprises a flexible material for allowing the flow channel to change.

6. The heater according to claim **5**, wherein the heated-air supply guide further comprises an outlet frame provided to an outlet of the heated-air supply guide.

7. The heater according to claim **5**, wherein the heated-air supply guide comprises one of a non-woven fabric, a cotton fabric, and a natural fabric made from natural fibers.

8. The heater according to claim **1**, wherein the heated-air supply guide is expandable and contractible.

9. The heater according to claim **1**, wherein the heater housing further comprises a second air-discharge port through which the heated air is discharged to heat a space around the heater housing.

10. The heater according to claim **9**, further comprising:
an opening/closing device provided to each of the first and second air-discharge ports of the heater housing.

11. The heater according to claim **1**, further comprising a remote controller having a button for manipulation of the heater and display screen that displays an operating state of the heater.

12. The heater according to claim **1**, further comprising a heat sink heating air inside the heater housing, wherein the heat sink is provided in the heater housing and transfers heat from the heating unit to air inside the heater housing.

13. The heater according to claim **1**, wherein the heating unit comprises one of a coil heater, a heat pipe, and a thermoelectric semiconductor device generating heat upon an electric current.

14. The heater according to claim **1**, wherein the heating unit comprises a burner that generates heat by combustion of oil or gas.

15. The heater according to claim **1**, wherein the heating unit is separable from the heater housing to be drawn out from the heater housing.

16. The heater according to claim **1**, wherein the heated-air supply guide is detachably connected to the first air-discharge port.

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