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(54) **TEMPERATURE EQUILIBRATING METHODOLOGY & INSTALLATION WITH WATER SUPPLY SYSTEM**

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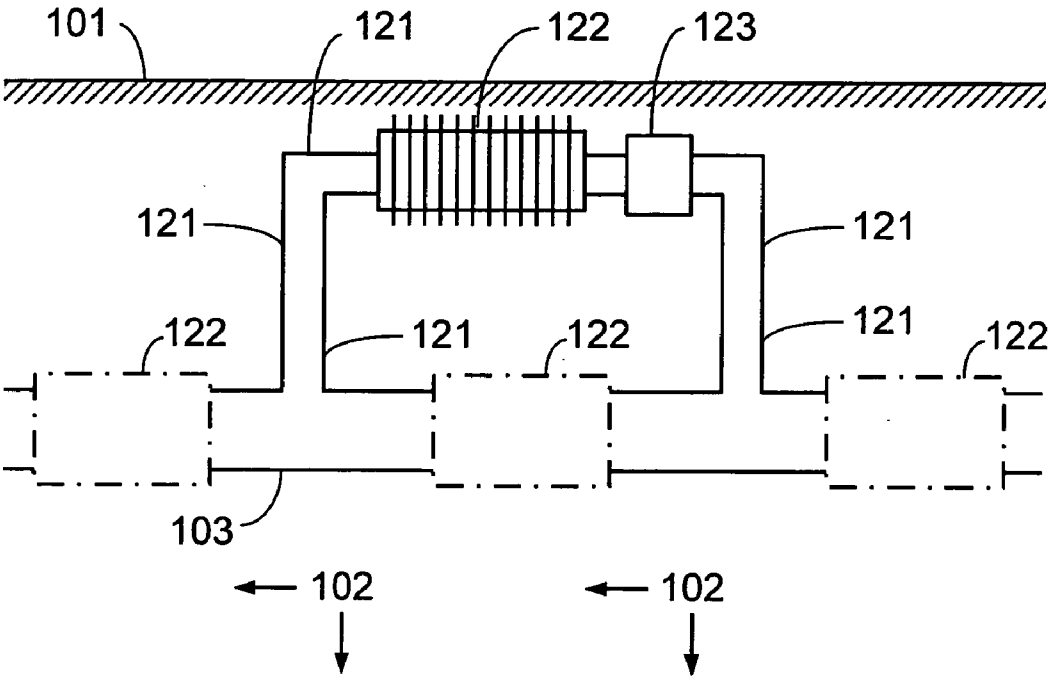
(57) **ABSTRACT**

A closed piping comprised of ground water pipe of a water supply system buried in the stratum and a closed water pipe provided on the ground to execute thermal conduction for equilibrating temperature from the thermal energy in the deeper stratum to a subject matter on the ground by the current running in the closed water pipes.



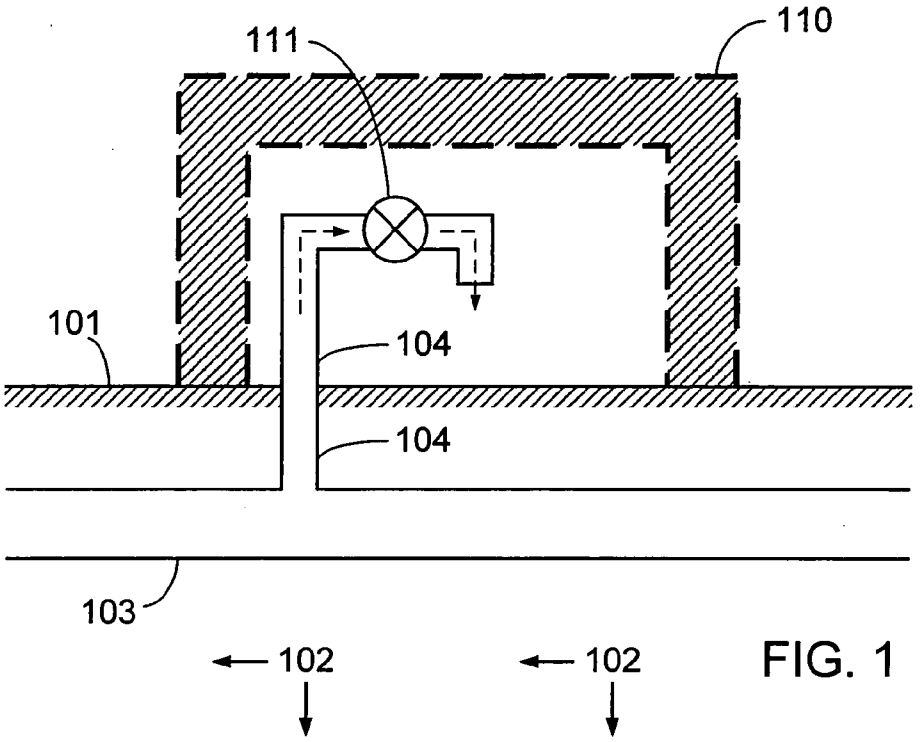

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FIG. 1

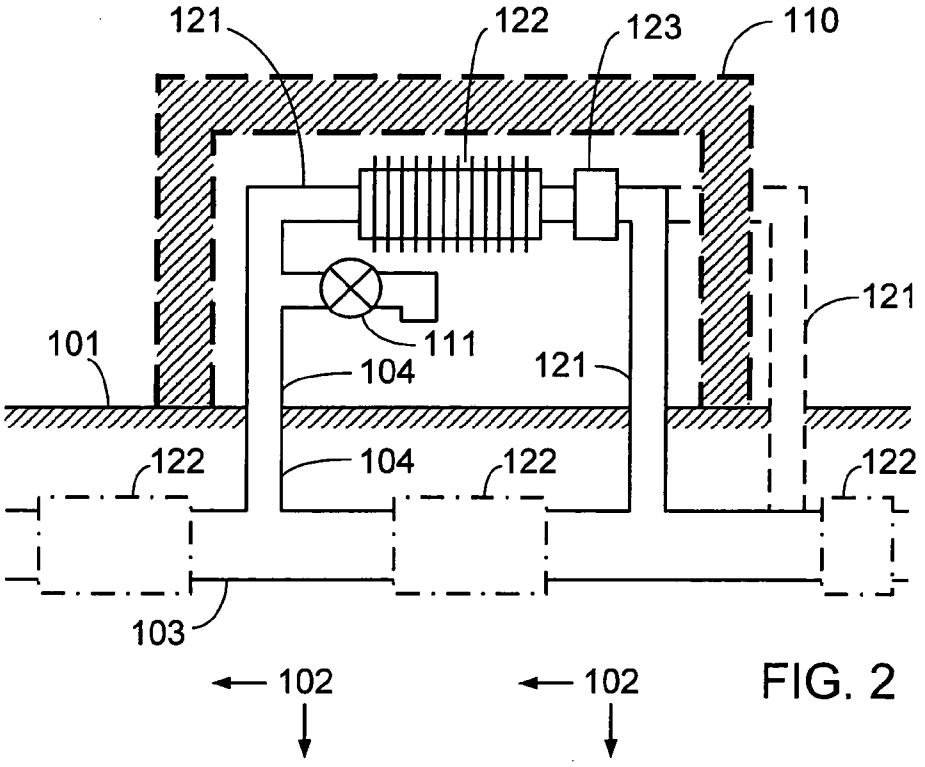
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FIG. 2

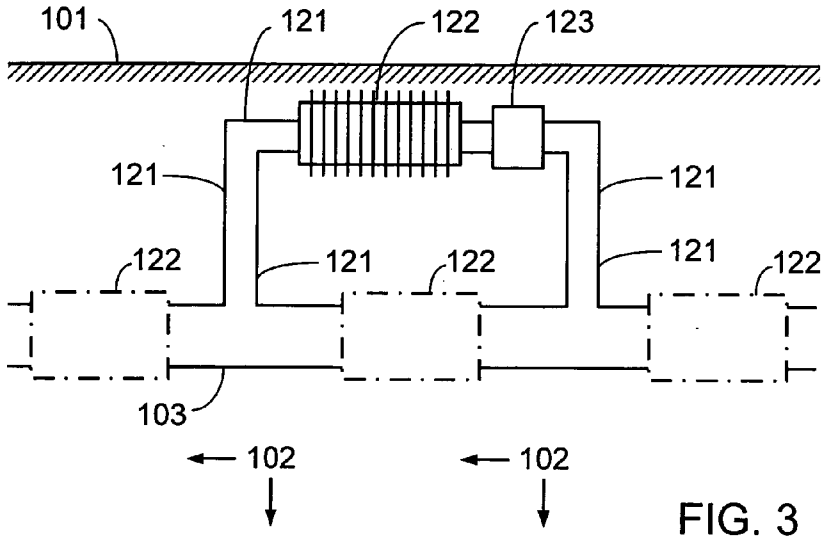
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FIG. 3

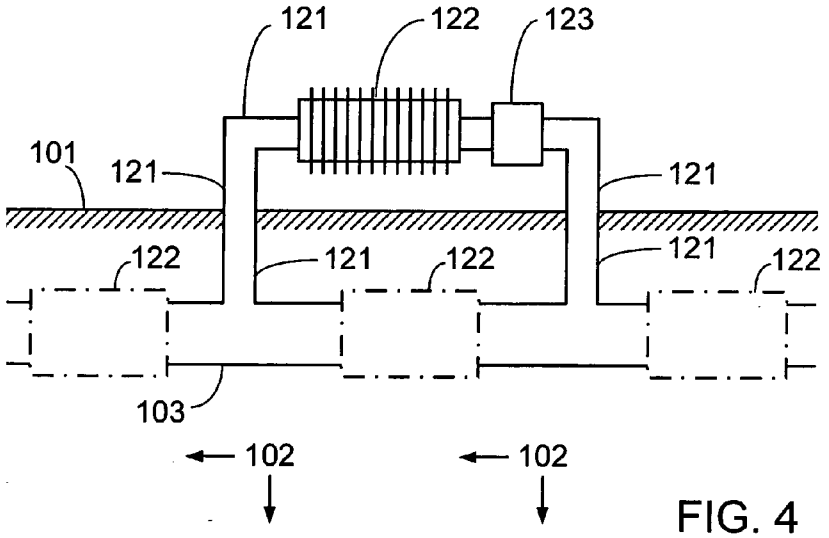
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FIG. 4

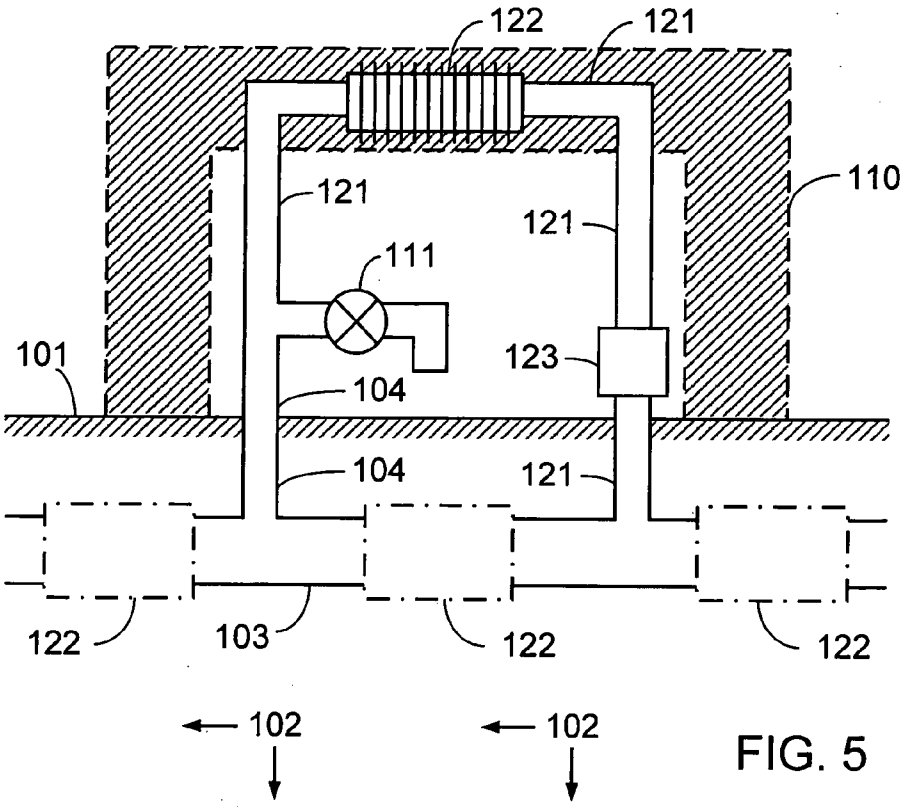
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FIG. 5

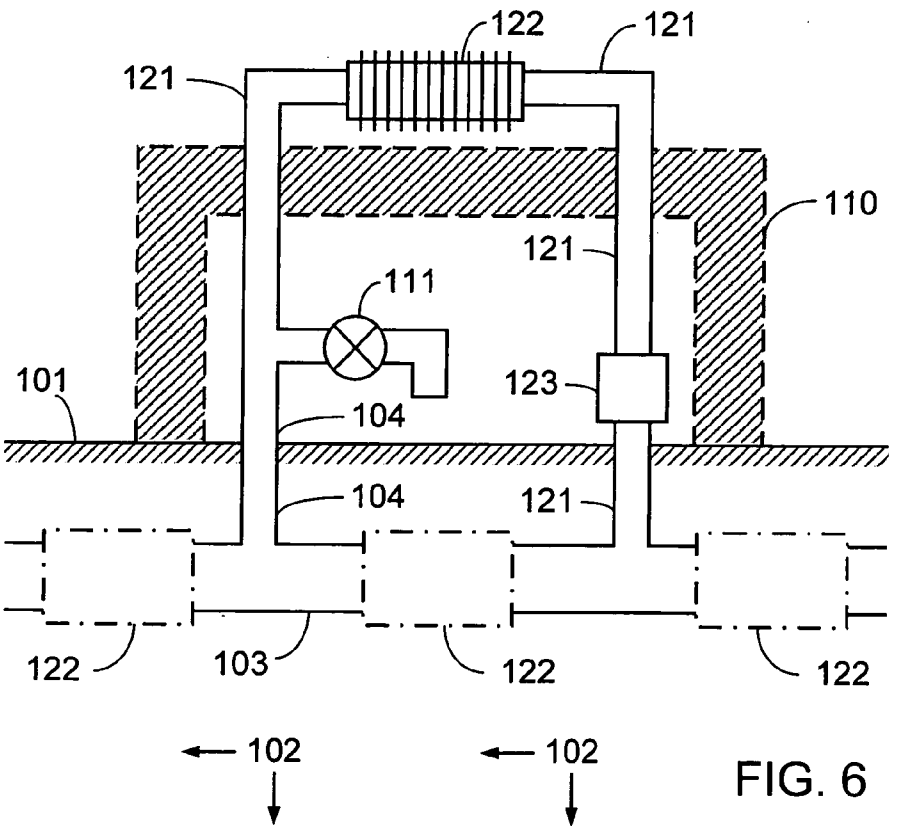
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FIG. 6

TEMPERATURE EQUILIBRATING METHODOLOGY & INSTALLATION WITH WATER SUPPLY SYSTEM

BACKGROUND OF THE INVENTION

[0001] (a) Field of the Invention

[0002] The present invention is related to a methodology and installation for temperature equilibrating conduction, and more particularly, to the use of specific piping from a water supply system and the water running in the pipe as a carrier to conduct the thermal energy in the stratum to a subject matter on the ground.

[0003] (b) Description of the Prior Art

[0004] Whereas reliance upon air conditioning system in summer time in conventional buildings and upon electric power or fuel for heating purpose in winter time consume massive energy source. Furthermore, in bitter cold days, frozen water pipe of the conventional water supply system exposed or buried just beneath the surface of the earth, accumulation of snow on roof and frozen road are often blamed for causing disasters.

SUMMARY OF THE INVENTION

[0005] The primary purpose of the present invention is to provide a methodology and installation to execute temperature equilibration thermal transmission between the thermal energy in the deeper stratum and a subject matter on the ground designated for transmission of thermal energy by a closed piping comprised of underground water pipe buried in the underground for a water supply system and a closed water pipe disposed on the ground to transmit the thermal energy in the stratum conducted by the underground pipe through the current running in the closed water pipe.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. **1** is a schematic view showing a layout of a conventional water supply piping and a piping in a building.

[0007] FIG. **2** is a schematic view of the present invention applied in a functional system of thermal equilibration in a building.

[0008] FIG. **3** is a schematic view showing that the present invention is applied in a construction of a temperature equilibration functional system in shallow stratum.

[0009] FIG. **4** is a schematic view showing that the present invention is applied in a construction of a temperature equilibration functional system exposed from a subject matter on the surface of the earth.

[0010] FIG. **5** is a schematic view showing that the present invention is applied in a construction of a temperature equilibration functional system exposed from top of a building.

[0011] FIG. **6** is a schematic view showing that the present invention is applied in a construction of an exposed temperature equilibration functional system on top of a building.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0012] The present invention of methodology and installation for temperature equilibration by means of a water supply system operates on having an underground water pipe conventional water supply system buried in the stratum and water running in the pipe as carriers to be incorporated with a passage comprised of a closed water pipe constructed on the ground, a temperature equilibrating object, and a pump. Whereas it is a well-known fact that the stratum 4~6 meters below the surface of the earth maintains a normal temperature range between 12~16□ all year round, the current pumped by the pump, or the circulating current resulted from the convection effect due to temperature difference when the hotter water runs to the cooler water and vice versa, or the current resulted from shunting effect, functions in the present invention as a carrier of thermal energy to execute thermal transmission of temperature equilibration between the thermal energy in the stratum and a subject matter on ground to receive the thermal energy transmission, thus to replace or support the conventional air conditioning system that consumes massive energy and further to save energy.

[0013] Referring to FIG. **1** for a layout of a conventional water supply piping and a piping of a building, wherein,

[0014] **101** relates to the surface of the earth;

[0015] **102** relates to a deeper stratum where the normal temperature maintains within the range of 12~16□;

[0016] **103** relates to an underground water pipe of a conventional water supply system buried in the deeper stratum **102**;

[0017] **104** relates to a water supply branch to be connected to where between a water valve **111** at the subscriber's and the underground water pipe **103** to deliver water from the water supply system to the subscriber; and

[0018] **111** relates to the water valve at the subscriber's building **110** that serves as a flow switch to fetch the water at random.

[0019] Within the layout as described above, the following problems often take place in bitter cold winter:

[0020] (1) The water inside the conventional water supply branch **104** that is closer to the surface of the earth **101** or that is exposed from the surface of the earth **101** is vulnerable to get frozen in bitter cold winter thus to block the current; and

[0021] (2) The roof of the building is sometimes threatened by collapse due to the weight and pressure imposed by accumulated snow or ice thereon.

[0022] The temperature equilibrating methodology and installation by means of the water supply system of the present invention is innovative to provide closed water pipe in a building for the thermal energy in the stratum absorbed by the underground water pipe buried in the stratum to execute thermal transmission of thermal equilibration to the perimeters of the closed water pipe or the temperature equilibration installation in the building through a flow passage created by the thermal equilibration installation, fluid pump and the groundwater pipe buried in the stratum with the circulation current as the carrier.

[0023] FIG. **2** is a schematic view of the present invention applied in a functional system of thermal equilibration in a building. Wherein, the present invention is essentially comprised of:

[0024] a underground water pipe **103**: buried in a deeper stratum **102** for transmission of current in the water supply system; the structure of the underground water pipe **103** may be in conventional form of pipe or in any geometric shape that facilitates heat transmission, and is made of material that provides good heat conduction such as metal or other heat conduction material to directly conduct the thermal energy in the stratum from

the underground water pipe **103**; furthermore, an optional item of temperature equilibrating installation **122** may be disposed in series with the underground water pipe **103** to improve conduction of the thermal energy in the stratum;

[0025] a closed water pipe **121**: related to a closed current piping, may be structured in a conventional pipe form or any geometric shape and material that facilitates heat transmission, and disposed at where even closer to a surface of the earth **101** than that by the underground water pipe **103**, where exposed from the surface of the earth **101**, on top in a building **110**, or in a selected space closer to the ground or to a wall; the inlet of the closed water pipe **121** is connected to the underground water pipe **103** to introduce the current from the underground water pipe **103** to flow through another section of the underground water pipe **103** connected to the outlet of the closed water pipe **121** before flowing back into the underground water pipe **103** to complete the flow passage in executing heat transmission of temperature equilibration by current; furthermore, an optional temperature equilibrating installation **122** and an optional pump **123** to pump the current may be provided in series as applicable;

[0026] the temperature equilibrating installation **122**: made of material with good heat conduction structured in a geometric shape that facilitates heat conduction, includes a water inlet and water passage in the temperature equilibrating installation **122**, and a water outlet; connected in series with the closed water pipe **121** in a building **110** or with the underground water pipe **103** to execute heat conduction of temperature equilibration with the thermal energy of the water passing by and that from the perimeter of the temperature equilibrating installation **122**; the temperature equilibrating installation may be provided as applicable to be connected in series to the underground water pipe **103** and/or the closed water pipe **121** in the building **110**, or not provided at all; and

[0027] a pump **123**: to pump the water flow to transmit thermal energy; may be of reciprocal or circulating pump driven by external force; the external force being selected according to the working environment includes the mechanical energy or the electric power converted from the mechanical energy generated from power motor, engine power, other wind velocity energy, thermal energy, temperature difference energy, or solar energy; furthermore, the pump **123** relates to an optional item to be provided or not provided as applicable.

[0028] Furthermore, the methodology and installation of temperature equilibration with the water supply system of the present invention can be also applied to open public facilities. It is a well-known fact that the underground water pipe of a water supply system is usually buried under a highway or other open public facilities and the accumulation of snow on highway or frozen highway will frustrate transportation. The methodology and installation of temperature equilibration with the water supply system of the present invention may be also applied in the temperature equilibrating transmission on the surface of the earth in shallow stratum of a highway, or in exposed temperature equilibrating transmission at open public place.

[0029] FIG. **3** is a schematic view showing that the present invention is applied in a construction of a temperature equilibration functional system in shallow stratum. The present invention is essentially comprised of:

[0030] a underground water pipe **103**: buried in a deeper stratum **102** for transmission of current in the water supply system; the structure of the underground water pipe **103** may be in conventional form of pipe or in any geometric shape that facilitates heat transmission, and is made of material that provides good heat conduction such as metal or other heat conduction material to directly conduct the thermal energy in the stratum from the underground water pipe **103**; furthermore, an optional item of temperature equilibrating installation **122** may be disposed in series with the underground water pipe **103** to improve conduction of the thermal energy in the stratum;

[0031] a closed water pipe **121**: related to a closed current piping, may be structured in a conventional pipe form or any geometric shape and material that facilitates heat transmission, and disposed at where even closer to a surface of the earth **101** than that by the underground water pipe **103**; the inlet of the closed water pipe **121** is connected to the underground water pipe **103** to introduce the current from the underground water pipe **103** to flow through another section of the underground water pipe **103** connected to the outlet of the closed water pipe **121** before flowing back into the underground water pipe **103** to complete the flow passage in executing heat transmission of temperature equilibration by current; furthermore, an optional temperature equilibrating installation **122** and an optional pump **123** to pump the current may be provided in series as applicable;

[0032] the temperature equilibrating installation **122**: made of material with good heat conduction structured in a geometric shape that facilitates heat conduction, includes a water inlet and water passage in the installation **122**, and a water outlet; connected in series with the closed water pipe **121** or with the underground water pipe **103** to execute heat conduction of temperature equilibration with the thermal energy of the water passing by and that from the perimeter of the temperature equilibrating installation **122**; the temperature equilibrating installation may be provided as applicable to be connected in series to the underground water pipe **103** and/or the closed water pipe **121** in the building **110**, or not provided at all; and

[0033] a pump **123**: to pump the water flow to transmit thermal energy; may be of reciprocal or circulating pump driven by external force; the external force being selected according to the working environment includes the mechanical energy or the electric power converted from the mechanical energy generated from power motor, engine power, other wind velocity energy, thermal energy, temperature difference energy, or solar energy; furthermore, the pump **123** relates to an optional item to be provided or not provided as applicable.

[0034] FIG. **4** is a schematic view showing that the present invention is applied in a construction of a temperature equilibration functional system exposed from a subject matter on the surface of the earth. The present invention is essentially comprised of:

[0035] a underground water pipe **103**: buried in a deeper stratum **102** for transmission of current in the water supply system; the structure of the underground water pipe **103** may be in conventional form of pipe or in any geometric shape that facilitates heat transmission, and is made of material that provides good heat conduction such as metal or other heat conduction material to directly conduct the thermal energy in the stratum from the underground water pipe **103**; furthermore, an optional item of temperature equilibrating installation **122** may be disposed in series with the underground water pipe **103** to improve conduction of the thermal energy in the stratum;

[0036] a closed water pipe **121**: related to a closed current piping, may be structured in a conventional pipe form or any geometric shape and material that facilitates heat transmission, and disposed at where exposed from the surface of the earth **101**; the inlet of the closed water pipe **121** is connected to the underground water pipe **103** to introduce the current from the underground water pipe **103** to flow through another section of the underground water pipe **103** connected to the outlet of the closed water pipe **121** before flowing back into the underground water pipe **103** to complete the flow passage in executing heat transmission of temperature equilibration by current; furthermore, an optional temperature equilibrating installation **122** and an optional pump **123** to pump the current may be provided in series as applicable;

[0037] the temperature equilibrating installation **122**: made of material with good heat conduction structured in a geometric shape that facilitates heat conduction, includes a water inlet and water passage in the temperature equilibrating installation **122**, and a water outlet; connected in series with the closed water pipe **121** or with the underground water pipe **103** to execute heat conduction of temperature equilibration with the thermal energy of the water passing by and that from the perimeter of the temperature equilibrating installation **122**; the temperature equilibrating installation **122** may be provided as applicable to be connected in series to the underground water pipe **103** and/or the closed water pipe **121** in the building **110**, or not provided at all; and

[0038] a pump **123**: to pump the water flow to transmit thermal energy; may be of reciprocal or circulating pump driven by external force; the external force being selected according to the working environment includes the mechanical energy or the electric power converted from the mechanical energy generated from power motor, engine power, other wind velocity energy, thermal energy, temperature difference energy, or solar energy; furthermore, the pump **123** relates to an optional item to be provided or not provided as applicable.

[0039] FIG. **5** is a schematic view showing that the present invention is applied in a construction of a temperature equilibration functional system exposed from top of a building. The present invention is essentially comprised of:

[0040] a underground water pipe **103**: buried in a deeper stratum **102** for transmission of current in the water supply system; the structure of the underground water pipe **103** may be in conventional form of pipe or in any geometric shape that facilitates heat transmission, and is made of material that provides good heat conduction such as metal or other heat conduction material to directly conduct the thermal energy in the stratum from the underground water pipe **103**; furthermore, an optional item of temperature equilibrating installation **122** may be disposed in series with the underground water pipe **103** to improve conduction of the thermal energy in the stratum;

[0041] a closed water pipe **121**: related to a closed current piping, may be structured in a conventional pipe form or any geometric shape and material that facilitates heat transmission, and disposed in a structure on top of a building **110**; the inlet of the closed water pipe **121** is connected to the underground water pipe **103** to introduce the current from the underground water pipe **103** to flow through another section of the underground water pipe **103** connected to the outlet of the closed water pipe **121** before flowing back into the underground water pipe **103** to complete the flow passage in executing heat transmission of temperature equilibration by current; furthermore, an optional temperature equilibrating installation **122** and an optional pump **123** to pump the current may be provided in series as applicable;

[0042] the temperature equilibrating installation **122**: made of material with good heat conduction structured in a geometric shape that facilitates heat conduction, includes a water inlet and water passage in the temperature equilibrating installation **122**, and a water outlet; connected in series with the closed water pipe **121** or with the underground water pipe **103** to execute heat conduction of temperature equilibration with the thermal energy of the water passing by and that from the perimeter of the temperature equilibrating installation **122**; the temperature equilibrating installation **122** may be provided as applicable to be connected in series to the underground water pipe **103** and/or the closed water pipe **121** in the building **110**, or not provided at all, and

[0043] a pump **123**: to pump the water flow to transmit thermal energy; may be of reciprocal or circulating pump driven by external force; the external force being selected according to the working environment includes the mechanical energy or the electric power converted from the mechanical energy generated from power motor, engine power, other wind velocity energy, thermal energy, temperature difference energy, or solar energy; furthermore, the pump **123** relates to an optional item to be provided or not provided as applicable.

[0044] FIG. **6** is a schematic view showing that the present invention is applied in a construction of an exposed temperature equilibration functional system on top of a building. The present invention is essentially comprised of:

[0045] a underground water pipe **103**: buried in a deeper stratum **102** for transmission of current in the water supply system; the structure of the underground water pipe **103** may be in conventional form of pipe or in any geometric shape that facilitates heat transmission, and is made of material that provides good heat conduction such as metal or other heat conduction material to directly conduct the thermal energy in the stratum from the underground water pipe **103**; furthermore, an optional item of temperature equilibrating installation

122 may be disposed in series with the underground water pipe **103** to improve conduction of the thermal energy in the stratum;

[0046] a closed water pipe **121**: related to a closed current piping, may be structured in a conventional pipe form or any geometric shape and material that facilitates heat transmission, and disposed at where even closer to a surface of the earth **101** than that by the underground water pipe **103**, where exposed from the surface of the earth **101**, or in a building **110**; the inlet of the closed water pipe **121** is connected to the underground water pipe **103** to introduce the current from the underground water pipe **103** to flow through another section of the underground water pipe **103** connected to the outlet of the closed water pipe **121** before flowing back into the underground water pipe **103** to complete the flow passage in executing heat transmission of temperature equilibration by current; furthermore, an optional temperature equilibrating installation **122** and an optional pump **123** to pump the current may be provided in series as applicable;

[0047] the temperature equilibrating installation **122**: made of material with good heat conduction structured in a geometric shape that facilitates heat conduction, includes a water inlet and water passage in the installation **122**, and a water outlet; connected in series with the closed water pipe **121** exposed from a top of a building **110** or with the underground water pipe **103** to execute heat conduction of temperature equilibration with the thermal energy of the water passing by and that from the perimeter of the temperature equilibrating installation **122**; the temperature equilibrating installation may be provided as applicable to be connected in series to the underground water pipe **103** and/or the closed water pipe **121** in the building **110**, or not provided at all, and

[0048] a pump **123**: to pump the water flow to transmit thermal energy; may be of reciprocal or circulating pump driven by external force; the external force being selected according to the working environment includes the mechanical energy or the electric power converted from the mechanical energy generated from power motor, engine power, other wind velocity energy, thermal energy, temperature difference energy, or solar energy; furthermore, the pump **123** relates to an optional item to be provided or not provided as applicable.

[0049] The temperature equilibration effects of the methodology and installation of temperature equilibration with a water supply system of the present invention include:

[0050] (1) the temperature of the subject matter to receive transmission of thermal energy is reduced by the thermal energy of the stratum at comparatively lower temperature; and

[0051] (2) the temperature of the subject matter on the surface of the earth to receive transmission of thermal energy is raised by the thermal energy of the stratum at comparatively higher temperature.

[0052] The temperature equilibrating installation **122** of the methodology and installation of temperature equilibration with a water supply system of the present invention may be provided as follows:

[0053] (1) to be provided in the underground floor and connected in series with the underground water pipe **103**; or

[0054] (2) to be provided at where closer to the surface of the earth and connected in series with the closed water pipe **121**, or

[0055] (3) to be connected in series with both of the underground water pipe **103** and the closed water pipe **121**; or

[0056] (4) not to be provided to either the underground water pipe **103** or the closed water pipe **121**.

[0057] The temperature equilibrating installation **122** of the methodology and installation of temperature equilibration with a water supply system of the present invention may be provided or not by taking the site of application and cost benefits into consideration. In addition to providing the temperature equilibrating installation **122**, the temperature equilibrating function may be achieved by the underground water pipe **103** or the closed water pipe **121** or the closed water pipe in lieu of the temperature equilibrating installation **122**; or a structure providing good thermal conduction performance is disposed other than the underground water pipe **103** or the closed water pipe **121** to promote temperature equilibrating function.

[0058] To upgrade the general efficiency, heat insulation material may be provided as required by the work environment or function between the underground water pipe **103** and the closed water pipe **121** exposed or closer to the surface of the earth **101** for the methodology and installation of temperature equilibration with a water supply system of the present invention, or the section of the closed water pipe **121** is made of heat insulation material to prevent loss of thermal energy.

[0059] The linking between the closed water pipe **121** and the underground water pipe **103** in the methodology and installation of temperature equilibration with a water supply system of the present invention may be as such that:

[0060] (1) The water inlet of the closed water pipe **121** is connected to the side of the upper stream; and the outlet, to the side of the lower stream of the underground water pipe **103**, or

[0061] (2) The water inlet of the closed water pipe **121** is connected to the side of the lower stream; and the outlet, to the side of the upper stream of the underground water pipe **103**.

[0062] Other than the pump **123** to pump current in the methodology and installation of temperature equilibration with a water supply system of the present invention to serve as an optional item to function as a carrier of thermal energy by taking the application site and cost benefits into consideration, the water convection effects may be applied to create circulating water, or the flowing force of the current in the underground water pipe **103** is used to create shunting effect for the water flowing through the closed water pipe **121** to serve as a carrier of thermal energy to execute heat transmission of temperature equilibration; in addition to being pumped by the pump **123**, the current flowing through the closed water pipe **121** may be found with any of the following patterns:

[0063] (1) the convection effects due to the fact that the cooler water descends and the hotter water ascends that create circulating water to serve as the carrier of thermal energy to execute heat transmission of temperature equilibration; or

[0064] (2) by following the direction of the current in the underground water pipe, the current indicates a specific angle that indicates positive water pressure when introduced

into the water inlet connected to the upper stream of the closed water pipe **121**; e.g., indicating a sharp angle<90° against the current direction of the underground water pipe **103** thus to facilitate introducing the current into the closed water pipe **121** while indicating a specific angle with negative water pressure against the direction of the current of the underground water pipe **103**, e.g., an obtuse angle>90° to facilitate the water flowing out of the outlets of the closed water pipe **121** and to converge with the underground water pipe **103** in creating the shunting effects for the current branching out of the closed water pipe **121** to serve a carrier of thermal energy in executing heat transmission of temperature equilibration; or

[0065] (3) by relying upon the pump to pump the current and/or water temperature difference flowing characteristics of the water and/or shunting effects, the water flowing through the closed water pipe **121** serves as the carrier of the thermal energy to execute heat transmission of temperature equilibration.

[0066] The methodology and installation of temperature equilibration with a water supply system of the present invention may be applied at the same time to incorporate a water supply branch **104** to the closed water pipe **121** for certain portion of the conventional water supply branch **104** to serve as a common water pipe **125** to create a closed current flow passage sharing the same structure with certain portion of the closed water pipe **121**. If the pump **123** will be provided to the closed current passage sharing the common structure, then

[0067] (1) the pump **123** is disposed to the closed water pipe **121**; or

[0068] (2) the pump **123** is disposed to the common water pipe **125**; or

[0069] (3) both of the closed water pipe **121** and the common water pipe **125** are respectively provided with the pump **123**; or

[0070] (4) the pump **123** is provided neither to the closed water pipe **121** nor to the common water pipe **125**.

[0071] The methodology and installation of temperature equilibration with a water supply system of the present invention when adapted with the closed current passage sharing the common structure provide the following results and benefits:

[0072] (1) The flowing of the current bearing thermal energy from the stratum helps prevent the portion of the conventional water supply branch **104** close to and exposed from the surface of the earth **101** from getting frozen due to ambient temperature.

[0073] (2) The flowing of the current bearing thermal energy from the stratum helps cool down the interior temperature of a building in summer.

[0074] (3) The flowing of the current bearing thermal energy from the stratum helps maintain a temperature higher than that in the outer environment during the wintertime without the service of central heating; helps melting the accumulated snow on the roof and prevent getting frozen when applied in a warehouse.

[0075] Accordingly, the methodology and installation of temperature equilibration with a water supply system of the present invention by operating on the natural thermal energy (ranging between 12~16□) in the stratum absorbed by the underground water pipe of an existing water supply system to have current as a carrier to flow through a closed water pipe disposed at where closer to the surface of the earth, exposed from the ground or in a building to execute heat transmission of temperature equilibration to offer lower cost, summary work, and precise function; therefore, this application for a patent is duly filed.

1. A methodology and installation of temperature equilibration with a water supply system operates on having an underground water pipe conventional water supply system buried in the stratum and water running in the pipe as carriers to be incorporated with a passage comprised of a closed water pipe constructed on the ground, a temperature equilibrating object, and a pump. Whereas it is a well-known fact that the stratum 4~6 meters below the surface of the earth maintains a normal temperature range between 12~16□ all year round, the current pumped by the pump, or the circulating current resulted from the convection effect due to temperature difference when the hotter water runs to the cooler water and vice versa, or the current resulted from shunting effect, functions in the present invention as a carrier of thermal energy to execute thermal transmission of temperature equilibration between the thermal energy in the stratum and a subject matter on ground to receive the thermal energy transmission, thus to replace or support the conventional air conditioning system that consumes massive energy and further to save energy.

2. A methodology and installation of temperature equilibration with a water supply system of claim **1** when applied in a building to provide the function of temperature equilibration is essentially comprised of:

a underground water pipe **103**: buried in a deeper stratum **102** for transmission of current in the water supply system; the structure of the underground water pipe **103** may be in conventional form of pipe or in any geometric shape that facilitates heat transmission, and is made of material that provides good heat conduction such as metal or other heat conduction material to directly conduct the thermal energy in the stratum from the underground water pipe **103**; furthermore, an optional item of temperature equilibrating installation **122** may be disposed in series with the underground water pipe **103** to improve conduction of the thermal energy in the stratum;

a closed water pipe **121**: related to a closed current piping, may be structured in a conventional pipe form or any geometric shape and material that facilitates heat transmission, and disposed at where even closer to a surface of the earth **101** than that by the underground water pipe **103**, where exposed from the surface of the earth **101**, on top in a building **110**, or in a selected space closer to the ground or to a wall; the inlet of the closed water pipe **121** is connected to the underground water pipe **103** to introduce the current from the underground water pipe **103** to flow through another section of the underground water pipe **103** connected to the outlet of the closed water pipe **121** before flowing back into the underground water pipe **103** to complete the flow passage in executing heat transmission of temperature equilibration by current; furthermore, an optional temperature equilibrating installation **122** and an optional pump **123** to pump the current may be provided in series as applicable;

the temperature equilibrating installation **122**: made of material with good heat conduction structured in a geometric shape that facilitates heat conduction, includes a water inlet and water passage in the tem-

perature equilibrating installation **122**, and a water outlet; connected in series with the closed water pipe **121** in a building **110** or with the underground water pipe **103** to execute heat conduction of temperature equilibration with the thermal energy of the water passing by and that from the perimeter of the temperature equilibrating installation **122**; the temperature equilibrating installation **122** may be provided as applicable to be connected in series to the underground water pipe **103** and/or the closed water pipe **121** in the building **110**, or not provided at all; and

a pump **123**: to pump the water flow to transmit thermal energy; may be of reciprocal or circulating pump driven by external force; the external force being selected according to the working environment includes the mechanical energy or the electric power converted from the mechanical energy generated from power motor, engine power, other wind velocity energy, thermal energy, temperature difference energy, or solar energy; furthermore, the pump **123** relates to an optional item to be provided or not provided as applicable.

3. A methodology and installation of temperature equilibration with a water supply system of claim **1** when applied in a shallow surface of the earth to provide the function of temperature equilibration is essentially comprised of:

a underground water pipe **103**: buried in a deeper stratum **102** for transmission of current in the water supply system; the structure of the underground water pipe **103** may be in conventional form of pipe or in any geometric shape that facilitates heat transmission, and is made of material that provides good heat conduction such as metal or other heat conduction material to directly conduct the thermal energy in the stratum from the underground water pipe **103**; furthermore, an optional item of temperature equilibrating installation **122** may be disposed in series with the underground water pipe **103** to improve conduction of the thermal energy in the stratum;

a closed water pipe **121**: related to a closed current piping, may be structured in a conventional pipe form or any geometric shape and material that facilitates heat transmission, and disposed at where even closer to a surface of the earth **101** than that by the underground water pipe **103**; the inlet of the closed water pipe **121** is connected to the underground water pipe **103** to introduce the current from the underground water pipe **103** to flow through another section of the underground water pipe **103** connected to the outlet of the closed water pipe **121** before flowing back into the underground water pipe **103** to complete the flow passage in executing heat transmission of temperature equilibration by current; furthermore, an optional temperature equilibrating installation **122** and an optional pump **123** to pump the current may be provided in series as applicable;

the temperature equilibrating installation **122**: made of material with good heat conduction structured in a geometric shape that facilitates heat conduction, includes a water inlet and water passage in the temperature equilibrating installation **122**, and a water outlet; connected in series with the closed water pipe **121** or with the underground water pipe **103** to execute heat conduction of temperature equilibration with the thermal energy of the water passing by and that from the perimeter of the temperature equilibrating installation **122**; the temperature equilibrating installation may be provided as applicable to be connected in series to the underground water pipe **103** and/or the closed water pipe **121** in the building **110**, or not provided at all; and

a pump **123**: to pump the water flow to transmit thermal energy; may be of reciprocal or circulating pump driven by external force; the external force being selected according to the working environment includes the mechanical energy or the electric power converted from the mechanical energy generated from power motor, engine power, other wind velocity energy, thermal energy, temperature difference energy, or solar energy; furthermore, the pump **123** relates to an optional item to be provided or not provided as applicable.

4. A methodology and installation of temperature equilibration with a water supply system of claim **1** when applied in a subject matter exposed from the surface of the earth to provide the function of temperature equilibration is essentially comprised of:

a underground water pipe **103**: buried in a deeper stratum **102** for transmission of current in the water supply system; the structure of the underground water pipe **103** may be in conventional form of pipe or in any geometric shape that facilitates heat transmission, and is made of material that provides good heat conduction such as metal or other heat conduction material to directly conduct the thermal energy in the stratum from the underground water pipe **103**; furthermore, an optional item of temperature equilibrating installation **122** may be disposed in series with the underground water pipe **103** to improve conduction of the thermal energy in the stratum;

a closed water pipe **121**: related to a closed current piping, may be structured in a conventional pipe form or any geometric shape and material that facilitates heat transmission, and disposed at where exposed from the surface of the earth **101**; the inlet of the closed water pipe **121** is connected to the underground water pipe **103** to introduce the current from the underground water pipe **103** to flow through another section of the underground water pipe **103** connected to the outlet of the closed water pipe **121** before flowing back into the underground water pipe **103** to complete the flow passage in executing heat transmission of temperature equilibration by current; furthermore, an optional temperature equilibrating installation **122** and an optional pump **123** to pump the current may be provided in series as applicable;

the temperature equilibrating installation **122**: made of material with good heat conduction structured in a geometric shape that facilitates heat conduction, includes a water inlet and water passage in the temperature equilibrating installation **122**, and a water outlet; connected in series with the closed water pipe **121** or with the underground water pipe **103** to execute heat conduction of temperature equilibration with the thermal energy of the water passing by and that from the perimeter of the temperature equilibrating installation **122**; the temperature equilibrating installation **122** may be provided as applicable to be connected in series

to the underground water pipe **103** and/or the closed water pipe **121** in the building **110**, or not provided at all; and

a pump **123**: to pump the water flow to transmit thermal energy; may be of reciprocal or circulating pump driven by external force; the external force being selected according to the working environment includes the mechanical energy or the electric power converted from the mechanical energy generated from power motor, engine power, other wind velocity energy, thermal energy, temperature difference energy, or solar energy; furthermore, the pump **123** relates to an optional item to be provided or not provided as applicable.

5. A methodology and installation of temperature equilibration with a water supply system of claim **1** when applied at where exposed from the top of a building to provide the function of temperature equilibration is essentially comprised of:

a underground water pipe **103**: buried in a deeper stratum **102** for transmission of current in the water supply system; the structure of the underground water pipe **103** may be in conventional form of pipe or in any geometric shape that facilitates heat transmission, and is made of material that provides good heat conduction such as metal or other heat conduction material to directly conduct the thermal energy in the stratum from the underground water pipe **103**; furthermore, an optional item of temperature equilibrating installation **122** may be disposed in series with the underground water pipe **103** to improve conduction of the thermal energy in the stratum;

a closed water pipe **121**: related to a closed current piping, may be structured in a conventional pipe form or any geometric shape and material that facilitates heat transmission, and disposed in a structure on top of a building **110**; the inlet of the closed water pipe **121** is connected to the underground water pipe **103** to introduce the current from the underground water pipe **103** to flow through another section of the underground water pipe **103** connected to the outlet of the closed water pipe **121** before flowing back into the underground water pipe **103** to complete the flow passage in executing heat transmission of temperature equilibration by current; furthermore, an optional temperature equilibrating installation **122** and an optional pump **123** to pump the current may be provided in series as applicable;

the temperature equilibrating installation **122**: made of material with good heat conduction structured in a geometric shape that facilitates heat conduction, includes a water inlet and water passage in the temperature equilibrating installation **122**, and a water outlet; connected in series with the closed water pipe **121** or with the underground water pipe **103** to execute heat conduction of temperature equilibration with the thermal energy of the water passing by and that from the perimeter of the temperature equilibrating installation **122**; the temperature equilibrating installation **122** may be provided as applicable to be connected in series to the underground water pipe **103** and/or the closed water pipe **121** in the building **110**, or not provided at all; and

a pump **123**: to pump the water flow to transmit thermal energy; may be of reciprocal or circulating pump driven by external force; the external force being selected according to the working environment includes the mechanical energy or the electric power converted from the mechanical energy generated from power motor, engine power, other wind velocity energy, thermal energy, temperature difference energy, or solar energy; furthermore, the pump **123** relates to an optional item to be provided or not provided as applicable.

6. A methodology and installation of temperature equilibration with a water supply system of claim **1** when applied on top of a building to provide the function of temperature equilibration in open air is essentially comprised of:

a underground water pipe **103**: buried in a deeper stratum **102** for transmission of current in the water supply system; the structure of the underground water pipe **103** may be in conventional form of pipe or in any geometric shape that facilitates heat transmission, and is made of material that provides good heat conduction such as metal or other heat conduction material to directly conduct the thermal energy in the stratum from the underground water pipe **103**; furthermore, an optional item of temperature equilibrating installation **122** may be disposed in series with the underground water pipe **103** to improve conduction of the thermal energy in the stratum;

a closed water pipe **121**: related to a closed current piping, may be structured in a conventional pipe form or any geometric shape and material that facilitates heat transmission, and disposed at where even closer to a surface of the earth **101** than that by the underground water pipe **103**, where exposed from the surface of the earth **101**, or in a building **110**; the inlet of the closed water pipe **121** is connected to the underground water pipe **103** to introduce the current from the underground water pipe **103** to flow through another section of the underground water pipe **103** connected to the outlet of the closed water pipe **121** before flowing back into the underground water pipe **103** to complete the flow passage in executing heat transmission of temperature equilibration by current; furthermore, an optional temperature equilibrating installation **122** and an optional pump **123** to pump the current may be provided in series as applicable;

the temperature equilibrating installation **122**: made of material with good heat conduction structured in a geometric shape that facilitates heat conduction, includes a water inlet and water passage in the installation **122**, and a water outlet; connected in series with the closed water pipe **121** exposed from a top of a building **110** or with the underground water pipe **103** to execute heat conduction of temperature equilibration with the thermal energy of the water passing by and that from the perimeter of the temperature equilibrating installation **122**; the temperature equilibrating installation may be provided as applicable to be connected in series to the underground water pipe **103** and/or the closed water pipe **121** in the building **110**, or not provided at all, and

a pump **123**: to pump the water flow to transmit thermal energy; may be of reciprocal or circulating pump driven by external force; the external force being selected according to the working environment includes the mechanical energy or the electric power

converted from the mechanical energy generated from power motor, engine power, other wind velocity energy, thermal energy, temperature difference energy, or solar energy; furthermore, the pump **123** relates to an optional item to be provided or not provided as applicable.

7. A methodology and installation of temperature equilibration with a water supply system of claim **1**, wherein, the temperature equilibrating effects include having the temperature of the subject matter to receive transmission of thermal energy reduced by the thermal energy of the stratum at comparatively lower temperature.

8. A methodology and installation of temperature equilibration with a water supply system of claim **1** wherein, the temperature equilibrating effects include having the temperature of the subject matter on the surface of the earth to receive transmission of thermal energy raised by the thermal energy of the stratum at comparatively higher temperature.

9. A methodology and installation of temperature equilibration with a water supply system of claim **1**, wherein, the temperature equilibrating installation **122** may be provided as follows:

(1) to be provided in the underground floor and connected in series with the underground water pipe **103**; or

(2) to be provided at where closer to the surface of the earth and connected in series with the closed water pipe **121**; or

(3) to be connected in series with both of the underground water pipe **103** and the closed water pipe **121**; or

(4) not to be provided to either the underground water pipe **103** or the closed water pipe **121**.

10. A methodology and installation of temperature equilibration with a water supply system of claim **1**, wherein the temperature equilibrating installation **122** of the methodology and installation of temperature equilibration with a water supply system of the present invention may be provided or not by taking the site of application and cost benefits into consideration; in addition to providing the temperature equilibrating installation **122**, the temperature equilibrating function may be achieved by the underground water pipe **103** or the closed water pipe **121** or the closed water pipe in lieu of the temperature equilibrating installation **122**; or a structure providing good thermal conduction performance is disposed other than the underground water pipe **103** or the closed water pipe **121** to promote temperature equilibrating function.

11. A methodology and installation of temperature equilibration with a water supply system of claim **1**, wherein, to upgrade the general efficiency, heat insulation material may be provided as required by the work environment or function between the underground water pipe **103** and the closed water pipe **121** exposed or closer to the surface of the earth **101** for the methodology and installation of temperature equilibration with a water supply system of the present invention, or the section of the closed water pipe **121** is made of heat insulation material to prevent loss of thermal energy.

12. A methodology and installation of temperature equilibration with a water supply system of claim **1**, wherein, the linking between the closed water pipe **121** and the underground water pipe **103** in the methodology and installation of temperature equilibration with a water supply system of the present invention may be as such that:

(1) The water inlet of the closed water pipe **121** is connected to the side of the upper stream; and the outlet, to the side of the lower stream of the underground water pipe **103**, or

(2) The water inlet of the closed water pipe **121** is connected to the side of the lower stream; and the outlet, to the side of the upper stream of the underground water pipe **103**.

13. A methodology and installation of temperature equilibration with a water supply system of claim **1**, wherein other than the pump **123** to pump current in the methodology and installation of temperature equilibration with a water supply system of the present invention to serve as an optional item to function as a carrier of thermal energy by taking the application site and cost benefits into consideration, the water convection effects may be applied to create circulating water, or the flowing force of the current in the underground water pipe **103** is used to create shunting effect for the water flowing through the closed water pipe **121** to serve as a carrier of thermal energy to execute heat transmission of temperature equilibration; in addition to being pumped by the pump **123**, the current flowing through the closed water pipe **121** may be found with any of the following patterns:

(1) the convection effects due to the fact that the cooler water descends and the hotter water ascends that create circulating water to serve as the carrier of thermal energy to execute heat transmission of temperature equilibration; or

(2) by following the direction of the current in the underground water pipe, the current indicates a specific angle that indicates positive water pressure when introduced into the water inlet connected to the upper stream of the closed water pipe **121**; e.g., indicating a sharp angle <90° against the current direction of the underground water pipe **103** thus to facilitate introducing the current into the closed water pipe **121** while indicating a specific angle with negative water pressure against the direction of the current of the underground water pipe **103**, e.g., an obtuse angle >90° to facilitate the water flowing out of the outlets of the closed water pipe **121** and to converge with the underground water pipe **103** in creating the shunting effects for the current branching out of the closed water pipe **121** to serve a carrier of thermal energy in executing heat transmission of temperature equilibration; or

(3) by relying upon the pump to pump the current and/or water temperature difference flowing characteristics of the water and/or shunting effects, the water flowing through the closed water pipe **121** serves as the carrier of the thermal energy to execute heat transmission of temperature equilibration.

14. A methodology and installation of temperature equilibration with a water supply system of claim **1**, wherein the methodology and installation of temperature equilibration with a water supply system of the present invention may be applied at the same time to incorporate a water supply branch **104** to the closed water pipe **121** for certain portion of the conventional water supply branch **104** to serve as a common water pipe **125** to create a closed current flow passage sharing the same structure with certain portion of the closed water pipe **121**. If the pump **123** will be provided to the closed current passage sharing the common structure, then

(1) the pump **123** is disposed to the closed water pipe **121**; or

(2) the pump **123** is disposed to the common water pipe **125**; or

(3) both of the closed water pipe **121** and the common water pipe **1253** are respectively provided with the pump **123**; or

(4) the pump **123** is provided neither to the closed water pipe **121** nor to the common water pipe **125**.

15. A methodology and installation of temperature equilibration with a water supply system of claim **14**, wherein, the present invention when adapted with the closed current passage sharing the common structure provides the following results and benefits:

(1) the flowing of the current bearing thermal energy from the stratum helps prevent the portion of the conventional water supply branch **104** close to and exposed from the surface of the earth **101** from getting frozen due to ambient temperature;

(2) the flowing of the current bearing thermal energy from the stratum helps cool down the interior temperature of a building in summer;

(3) the flowing of the current bearing thermal energy from the stratum helps maintain a temperature higher than that in the outer environment during the wintertime without the service of central heating; helps melting the accumulated snow on the roof and prevent getting frozen when applied in a warehouse.

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