CLAIMS

1. A radiation heat dissipation and radiation heat collection-based cold and hot central air conditioning system, comprising a compressor, a liquid accumulator, an indoor unit and an outdoor unit connected in sequence, wherein the outdoor unit comprises a radiation heat collector, the radiation heat collector comprises a protection plate, a heat absorption plate and a plate core, the heat absorption plate is located between the plate core and the protection plate, the plate core comprises a heat exchange medium inlet end and a heat exchange medium outlet end, and the heat absorption plate is used to transfer heat, which is absorbed, to the heat exchange medium circulating in the plate core; and the central air conditioning system is a single-stage carbon dioxide cycle system using carbon dioxide as a single cycle working medium.

2. The radiation heat dissipation and radiation heat collection-based cold and hot central air conditioning system according to claim 1, wherein the plate core abuts against the heat absorption plate tightly on one side; glass wool is arranged on the other side of the plate core; the heat absorption plate is a solar heat collecting plate.

3. The radiation heat dissipation and radiation heat collection-based cold and hot central air conditioning system according to claim 1, wherein the protection plate is made from tempered glass; the plate core is a serpentine coil; a heat collection module is formed by connecting a plurality of radiation heat collectors in series.

4. The radiation heat dissipation and radiation heat collection-based cold and hot central air conditioning system according to claim 1, wherein the radiation heat collector further comprises a heat exchanger composed of copper tubes and fins.

5. The radiation heat dissipation and radiation heat collection-based cold and hot central air conditioning system according to claim 1, wherein the indoor unit comprises a heat

exchange medium circulating pipeline arranged in a high-rise building, and the high-rise building comprises a plurality of indoor spaces, the plurality of indoor space is provided with a plurality of indoor heat exchangers, and a first throttle valve is provided at an inlet end and/or an outlet end of each indoor heat exchanger, a second throttle valve is arranged on a pipeline of each floor of the building.

6. The radiation heat dissipation and radiation heat collection-based cold and hot central air conditioning system according to claim 1, wherein the outdoor unit comprises a flash heat exchanger which is arranged in parallel with the radiation heat collector, a first electromagnetic valve is arranged on a pipeline of the radiation heat collector, a second electromagnetic valve is arranged on a pipeline of the flash heat exchanger.

7. The radiation heat dissipation and radiation heat collection-based cold and hot central air conditioning system according to claim 6, wherein the flash heat exchanger comprises a shell, a plurality of heat exchange units, a plurality of water atomization devices, a fan and a heat exchange medium flow pipe, the fan is arranged outside the shell and used for forming negative pressure in the shell; the plurality of heat exchange units and the plurality of water atomization devices are arranged in the shell, and for each of the plurality of heat exchange units, a coil in the heat exchange unit is connected with the heat exchange medium flow pipe.

8. The radiation heat dissipation and radiation heat collection-based cold and hot central air conditioning system according to claim 7, wherein for each water atomization device of the plurality of water atomization devices, a controller for controlling the opening or closing of the water atomization device is arranged on the water atomization device, and the controller is connected to the control center; and

the control center is configured to randomly select the water atomization device to be opened or closed according to a set time and a set proportion of the plurality of water atomization devices opened.

9. The radiation heat dissipation and radiation heat collection-based cold and hot central air conditioning system according to claim 7, wherein each of the plurality of heat exchange units further comprises a plurality of heat exchange fins, and the coil in the heat exchange unit penetrates the plurality of heat exchange fins; each of the plurality of water atomization devices comprises an ultrasonic atomizer and a water tank, the ultrasonic atomizer is arranged in the water tank; the plurality of heat exchange units is a plurality of drawer-type heat exchange units and are stacked to form the flash heat exchanger, and the shell is a closed shell; the compressor and the liquid accumulator are arranged in a cabinet; the flash heat exchanger is also arranged in another cabinet.

10. The radiation heat dissipation and radiation heat collection-based cold and hot central air conditioning system according to any one of claims 1 to 9, wherein the central air conditioning system further comprises a first four-way reversing valve and a second four-way reversing valve, four ports of the first four-way reversing valve are respectively connected with a compressor suction end, a compressor exhaust end, the outdoor unit and the indoor unit; four ports of the second four-way reversing valve are respectively connected with the outdoor unit, a liquid inlet of the liquid accumulator, a liquid outlet of the liquid accumulator and the indoor unit; a one-way valve is arranged on a pipeline between the liquid accumulator and the second four-way reversing valve; a third throttle valve is arranged on a pipeline between the outdoor unit and the second four-way reversing valve.