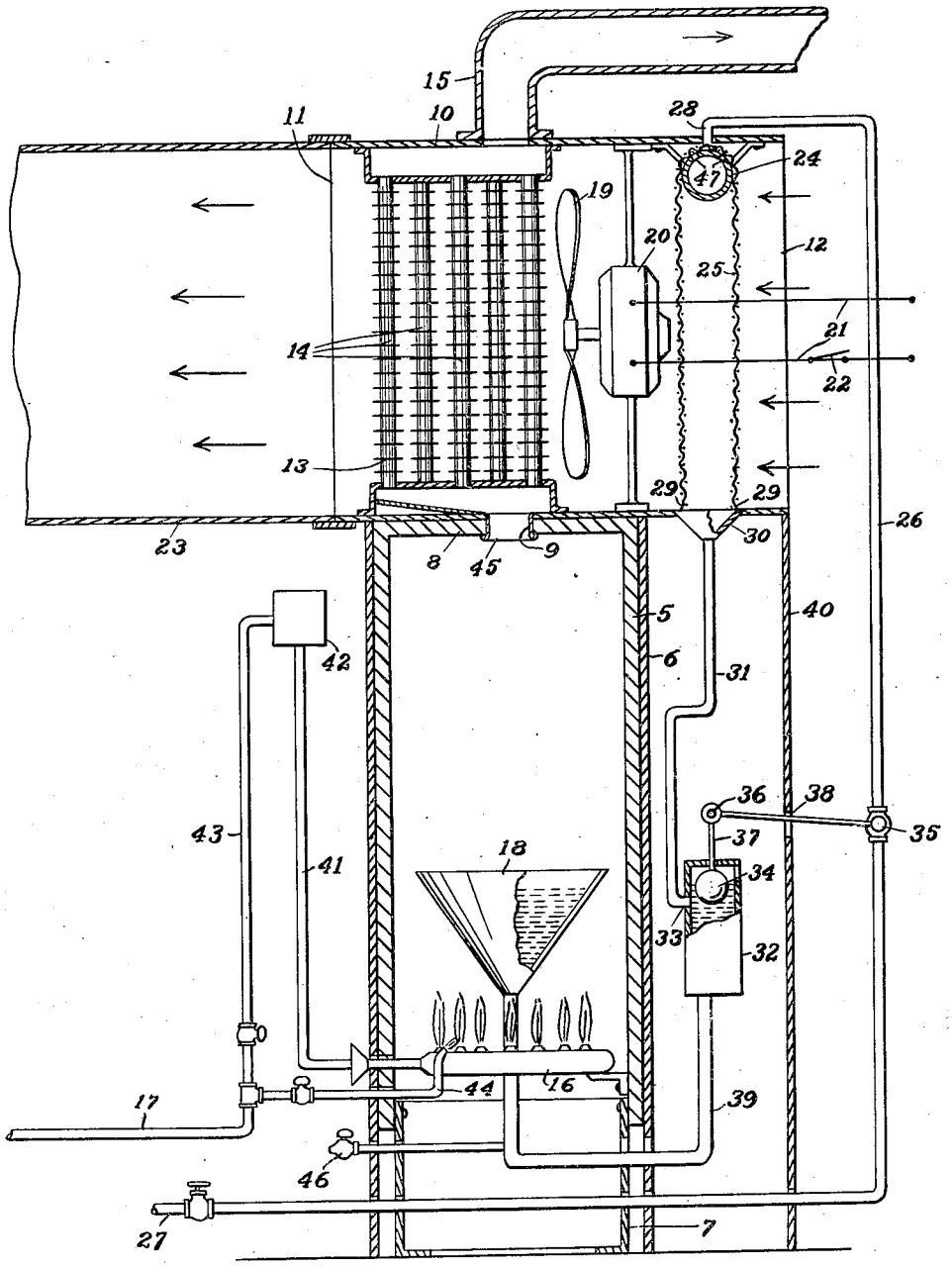
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AIR CONDITIONING UNIT

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AIR CONDITIONING UNIT

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3 Claims. (Cl. 126—116)

This invention relates to an air conditioning unit and particularly to a means for heating the air and simultaneously filtering, washing and humidifying the air.

An object of the invention is to provide means of the kind described, adapted to be used as a central heating unit.

Another object is to provide such means adapted for increased heating capacity at a reduced cost.

Another object is to provide a heating unit in which both hot air and vapor or humidified air are utilized for creating the heat.

Another object is to provide such a unit in which the washing and humidifying means are automatically supplied and controlled.

Another object is the provision of such a heating unit which is compact and simple and adapted for low cost manufacture and ready assembly.

These and other objects are attained by the means described herein and illustrated in the accompanying drawing in which the figure is a cross sectional, elevational view of the air conditioning means of this invention, as associated with an air conduit system.

The device comprises a casing 5 provided with exterior insulation 6 and set up upon a suitable base 7. The casing has a top 8 provided with an aperture 9. On the top of the casing is positioned a housing 10 having the open ends 11 and 12. Within the housing a radiator 13 is positioned. This radiator is preferably of the kind known as the fin type unit heater and comprises pipes 14, preferably of copper, which are open at their ends in order to communicate at the bottom with the aperture 9 and at the top with a flue 15 communicating with the interior of the housing 10.

Within the casing 5 is disposed a heating element 16, which as shown, is the circular or ring terminus of a gas line 17. The heating element 16 is one of the means utilized for heating the radiator 13. Means are likewise provided for heating the radiator by means of steam or vapor which mixes with the hot gases in the casing 5. These means comprise a water container or evaporator pan 18 within the casing above the heating element 16. The supply of water to this container will be described in conjunction with the washing of the air utilized in the system.

Air is induced into the housing 10 by means of a fan 19, driven by suitable means such as a motor 20 associated with the circuit 21 and switch 22.

This fan is adapted to draw air into the rear end 12 of the housing 10 and to pass it through the radiator 13, exteriorly of the pipes thereof and subsequently to pass the air through the air conditioning system, the terminus end of which is indicated herein at 23, in front of the radiator 13. Air filtering, washing and humidifying means are disposed in the housing 10 in the pathway of the indrawn air. These means comprise a header 24 disposed in the upper part of the housing 10 and having disposed or passed thereover a plurality of loose weave cloths 25. The header 24 is adapted to contain water fed downwardly upon the cloths 25 by means of perforations 47 in the top portions of said header. The header is replenished by means of the water pipe line 26 connected with a suitable supply source at the end 27. The upper end of line 26 may enter the housing 10 and the header 24 as indicated at 28.

The lower ends 29 of the outside filter cloths have their lower ends attached adjacent the upper edges of a lower trough 30 into which said cloths drain. Lower trough 30 is connected by a line 31 with a receiving tank 32 as indicated at 33. Interiorly of this tank is disposed a float 34 in pivotal connection with a valve 35 in the supply line 26. This connection may take the form of the fulcrum center such as 36, and a pair of arms 37 and 38 respectively, attached to the float and to said valve 35. It will be understood that when the float rises to a predetermined level, the valve 35 is shut off and that when said float descends to a predetermined low level the valve is opened.

At the bottom of the tank 32 the latter is placed in connection with the evaporator pan 18 by means of a line 39 which passes upwardly through the ring shaped heating element 16 and has the said flash pan secured to the end thereof. The water level in tank 32 and container 18 is adapted to be maintained equal. If desired, the lines 31 and 39, tank 32, and associated parts, may be enclosed in the casing 40.

Line 41 connects the heating element 16 with a thermostat 42. Said thermostat by means of a line connection 43 and a suitable valve, is adapted to turn the gas supply on and off as the temperature varies within a predetermined range.

To start operation of the air conditioning means the water supply entering at 27 is turned on and the header 24 is filled for saturating the filter cloths 25. The water passes downwardly therefrom through the tank 32 into the flash pan or container 18. Thereafter, the pilot 44, which is provided in connection with heating element 16, is lit, and the main gas valve is opened by the

thermostat, the heating element being turned on to full capacity. The heating element 16 heats the water within the container 18, and the steam therefrom intermixes with the hot gases from the heating element, and said mixture rises up through the aperture 9 and passes into and heats the pipes 14 of the radiator 13. The cooled and partly dry flue gas passes out through the flue 15 and the condensation within the pipes 14 drains from said pipes to the aperture 9, dropping from a bead 45, provided on the lower edge of said aperture, back into the container 18. The humidified hot gases thus produced is adapted to heat the radiator efficiently and in a much shorter time than dry heat would accomplish the result.

The humidifying and washing of the air passed through the air conduit system is effected by evaporation in the filter cloths 25. The replenishing of the water within the header 24, chamber 32, and evaporator pan 18, has been previously described. When it is desired to drain these and associated parts, or flush the filter cloths, the valve 46, provided in connection with the line 39, may be opened.

What is claimed is:

1. An air conditioning unit comprising a casing, a housing at the top of the casing, a radiator in the housing and comprising pipes communicating with the interior of the casing, a flue communicating with said pipes, a burner in the casing, a water container in the casing above the burner and normally provided with water, the heat products from said burner and container being adapted to intermix in the casing and to pass into and heat said radiator pipes, means for returning condensation in the pipes to said container, an air conduit system in communication with said housing in front of said radiator, a fan in the housing behind the radiator, means for rotating the fan, the fan being adapted to induce air into the housing behind the radiator and to move the air through said radiator exteriorly of the pipes thereof and subsequently through said conduit system, filter cloths suspended in the housing behind the fan in the path of the indrawn air, a water supply line adapted to pass water through said cloths, a tank beneath said cloths for receiving water drainage therefrom, a line connecting the interior of said tank with the interior of the water container in said casing and adapted to maintain an equal water level in said tank and container, a float in said tank, a valve in said water supply line and controlled by said float for replenishing and shutting off the water supply to said tank, and a pilot and thermostatic control means associated with said heating element.

2. The combination with air conduit system, of a housing communicating with said system, a radiator in the housing, a casing communicating with the housing, means in the casing for heating the radiator and comprising a burner in the casing, a water container in the casing above the burner for moistening gases of combustion, means for returning condensation from the radiator to said water container, air volume moving means for inducing air into the housing and for moving the air past the radiator into the system, means for filtering, washing and humidifying the air drawn into said housing, and a line supplying water to the humidifying means in the housing and a second line receiving drainage from said humidifying means for supplying water to the moistening means in the casing.

3. The combination with an air conduit system, of a housing communicating with the system, a casing associated with the housing, a radiator in the housing communicating with the casing, means in the casing for heating said radiator and comprising a burner in the casing, a water container in the casing above the burner for moistening gases of combustion, means for inducing air into the housing and for passing the air through the radiator and system, air filter cloths disposed in the path of the induced air, a water supply means for maintaining saturation of said cloths, a tank for receiving drainage from said cloths, a line connecting said water container and said tank and providing for maintenance of an equal water level in both said container and tank, and means adapted to replenish or shut off the water supply upon occurrence of predetermined variations in said water level.

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