

thermostat fail to prevent improper or unsafe temperature being maintained inside the heater.

3. A third thermostat at the gas pilot which, unless kept warm by the pilot flame, will bring about the opening of the main switch to the burner motor, thus insuring that no fuel shall be injected unless a flame is in being surely to ignite it.

There are many other combinations for giving assured protection with oil burners other than thermostatic devices, such as pressure and weight-actuated mechanisms, but it is doubtful whether they are as reliable as the thermostatically controlled schemes.

Where electric ignition for the intermittent oil spray is used, it is safer to provide for a continuously operating spark, and to have a thermostat in the heater which will cut out the main switch if the temperature ever gets lower than the critical point which indicates failure to ignite the spray.

Gas Burning Appliances

The same high intensity as with oil fuel makes it necessary to depend on thermostats to prevent waste, and the intermittent operation and

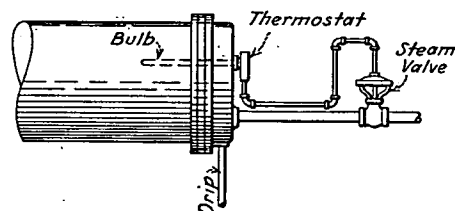


FIG. 6. THERMOSTAT ON STORAGE WATER HEATER

Note.—Connected to special heavy duty water heater and regulating temperature of water by flow of steam in coils. Flow of steam controlled by temperature of water to be heated.

necessity for a pilot flame makes it wise to install for gas the same combination of three thermostats as for oil burners, one on the general service, one in the heater, and one on the pilot flame.

Automatic Fuel Burner Control for House Heating and Water Heating

The automatic burning of fuel for house heating has made rapid progress within the last decade, and it may be said this entire industry is basically dependent upon automatic heat control. Liquid fuel such as oil, solid fuel such as certain coals, and gas are all responsive to automatic control through what might best be called a system of controls. The thermostat on the wall, of say the living-room, is the master device but may be made inoperative through the functioning of one or several other devices more properly called safety devices. These are all more or less well understood.

In practically every home there are two primary heat requirements, that of warming the house and that of heating water for domestic needs. One automatic fuel burner may perform this double function and thus give service through the entire year.

Fig. 10 shows typical arrangement of installation employing standard boiler, fuel burner, indirect water heater, storage tank with thermostat

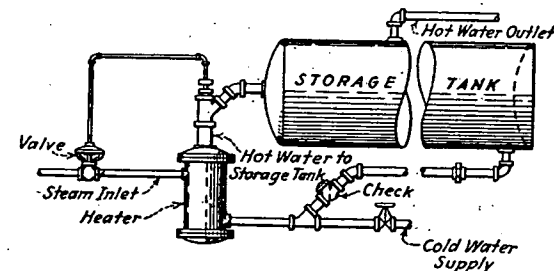


FIG. 7. THERMOSTAT ON AN INSTANTANEOUS WATER HEATER AND STORAGE TANK

Note.—Controlling supply of steam to an instantaneous water heater and storage tank. Control of steam to heater maintained by temperature of water in tank.

and control valve with thermostat, with the added safety controls to fit the fuel burner employed.

The thermostatic heat controls consist of room thermostat and tank thermostat.

These thermostats are so interconnected that readiness to serve on the part of the fuel burner is maintained while both or either heat or hot water is wanted. When no heat for warming is wanted the room thermostat simply closes the heating equipment off and the burner continues to maintain the hot-water supply, and that at very satisfactory efficiency. The tank thermostat closes the burner off whenever the heating valve to the house is closed and the water in the tank is at the temperature for which it is set. There is a pressurestat for closing the burner off when the steam pressure reaches a certain point.

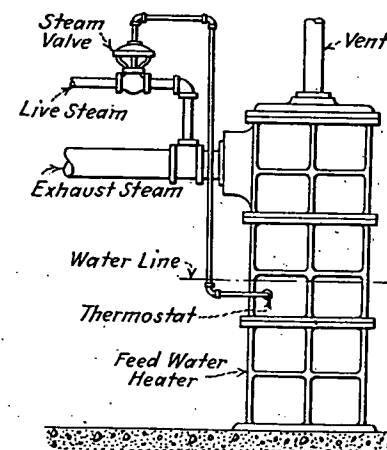


FIG. 8. THERMOSTAT ON AN OPEN FEED WATER HEATER

Note.—Regulating temperature of feed water by injection of live steam to supplement exhaust steam, controlled from temperature of feed water.