

FIG. 5. AN ARRANGEMENT FOR TEMPERED AIR WITH WARM AIR FURNACES

artificial lights, the problem will be to keep cool rather than warm, and the room thermostat, in a temperature above that at which it is set to operate, will ordinarily shut off all heat, while the fan will deliver unheated air. In a room at 80 deg. the admission of air colder than about 70 deg. (depending on the point of entry) will cause discomfort from drafts.

The prevention of this unfortunate situation is achieved by installing two thermostats, one in the room and one in the air duct, the room thermostat serving merely to admit air to the duct thermostat. When the room is cool, both thermostats will be closed and warm air will enter. When the room temperature gets to the critical point of the room thermostat, the room thermostat opens, passing air to the duct thermostat. The duct thermostat may be set to permit this air to pass on by and to function at the heater to reduce the temperature, but will be set so that when the duct temperature lowers to the critical point of the duct thermostat, the latter takes control and prevents the entering air from getting so cool as to cause drafts.

Unit Ventilating Systems

These individual fan-radiator units are usually equipped with highly efficient radiators in one section, having one supply and one return valve, and depend on nicely adjusted dampers for mixing the heated air with unheated air to gain a desirable admission temperature. It is usually not wise to operate the steam supply valves with thermostats, since freezing may occur, and it is usually not practicable to install in these units separate tempering heaters with separate automatic control. The approved procedure is to use an intermediate or slow acting room thermostat for operating the mixing dampers in the unit. This thermostat

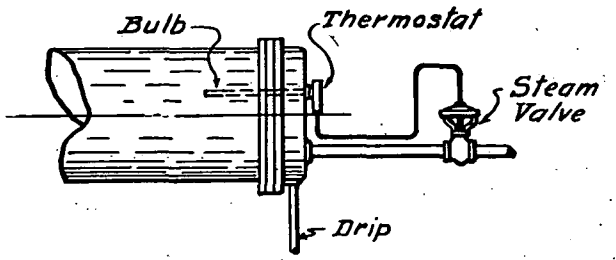

FIG. 6. THERMOSTAT ON STORAGE WATER HEATER

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.

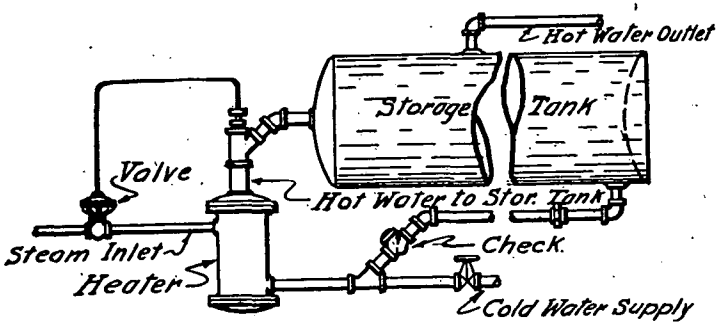

FIG. 7. THERMOSTAT ON AN INSTANTANEOUS WATER HEATER AND STORAGE TANK

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.

may also operate the radiator valves if a vacuum system of steam circulation is provided. If the steam circulation is single-pipe, or any kind of gravity type, the direct radiators should have positive thermostats.

The fresh air intakes to the units should be closed when the building is unoccupied, and the human operator cannot be trusted, especially in an installation comprising many units, to do this by manual means at each unit. An excellent recourse is to handle these cold air intake dampers by a compressed air line running from the control point, say in the boiler room, which by manual opening of a valve permits air to pass to all of the units and to open all of the inlet dampers, the arrangement being such

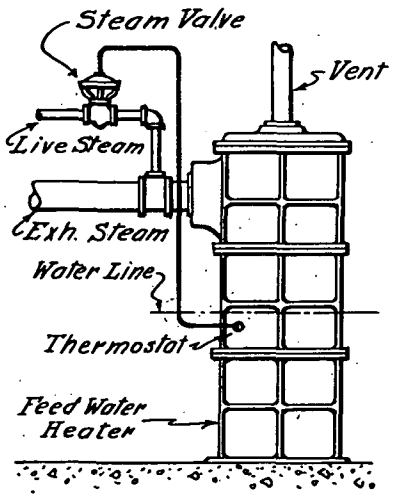

FIG. 8. THERMOSTAT ON AN OPEN FEED WATER HEATER

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