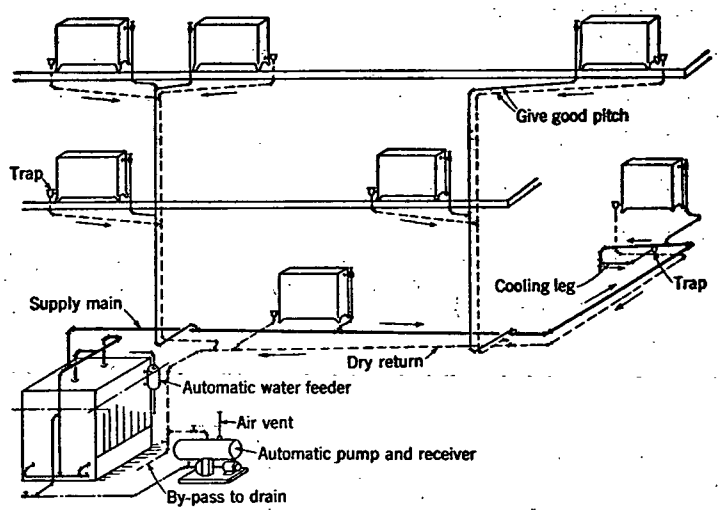

FIG. 9. TYPICAL INSTALLATION USING CONDENSATE PUMP

Fig. 9 illustrates a typical low pressure system with condensate pump.

Two-Pipe Vapor Systems

Two-pipe vapor systems operate at pressures varying from 30 in. vacuum to 15 psig without the use of a vacuum pump. A typical two-pipe up-feed vapor system is shown in Fig. 10, and a typical two-pipe down-feed system is illustrated in Fig. 11. The method of dripping drop risers in a down-feed system is illustrated in Fig. 12. Radiators discharge their condensate and air through thermostatic traps to the dry-return main. Air is eliminated, when the system is under pressure, at the ends of the supply and return

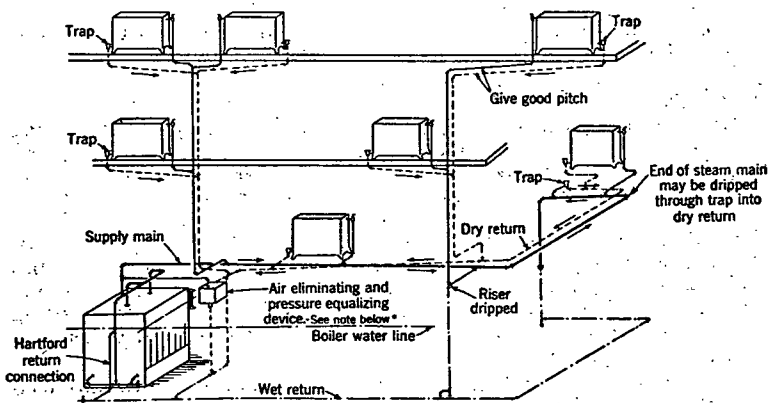

FIG. 10. TYPICAL UP-FEED TWO-PIPE SYSTEM WITH AUTOMATIC RETURN TRAP*

* Proper piping connections are essential with special appliances for pressure equalising and air elimination.

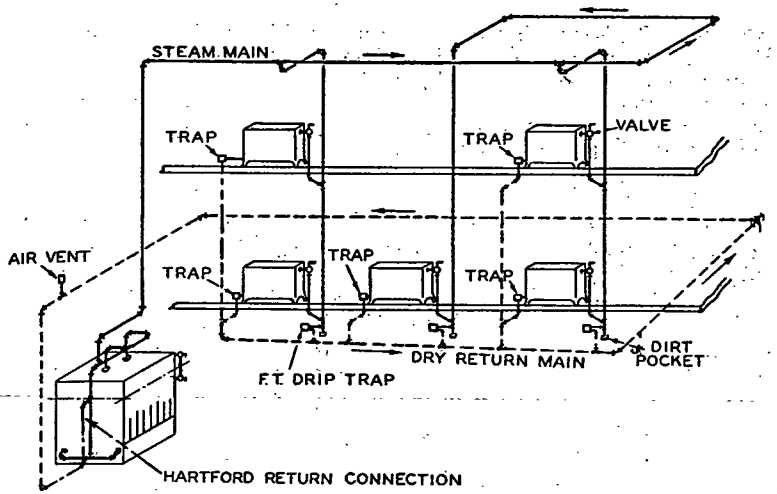

FIG. 11. TYPICAL DOWN-FEED TWO-PIPE SYSTEM

mains just before they drop to the wet return. The air valves are of the float and thermostatic type which opens when cool air contracts the thermostatic element, and closes when steam expands the element. The float element of the valve closes the valve when, due to pressure differences, water rises to the point of overflow in the main. The air valves are also provided with a small check disc which closes to prevent the inflow of air to the system when the pressure drops below atmospheric pressure. This enables the system to operate under vacuum conditions at lower steam temperatures for a period of four to eight hours, depending on the tightness of the system.

Vapor systems may also be provided with an automatic return trap or alternating receiver which automatically returns condensate to the boiler

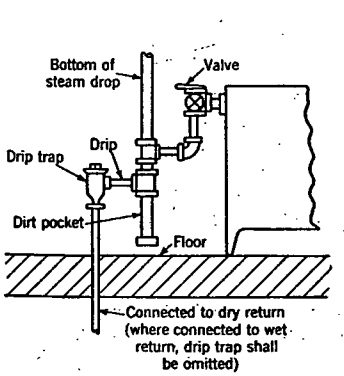

FIG. 12. DETAIL OF DRIP CONNECTIONS AT BOTTOM OF DOWN-FEED STEAM DROP

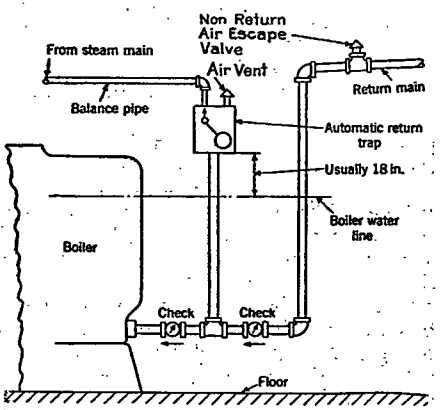

FIG. 13. TYPICAL CONNECTIONS FOR AUTOMATIC RETURN TRAP