VAPOR HEATING.

The Donnelly Fractional Distribution System.

The primary object in the Donnelly one-pipe and two-pipe fractional distribution systems (Donnelly Systems Co., New York) is to obtain fractional control of the steam supply and to effect distribution to the various radiators under varying weather conditions. In each system the fractional generation of steam is accomplished by means of a regulator (Fig. 3). In addition each radiator is provided with a packless inlet valve (Fig. 4).

In the one-pipe system the air is exhausted by means of a weight-controlled vacuum air valve on each radiator (Fig. 5). Distribution to radiators is obtained by proper selection of pipe sizes and by variously wighting the vacuum air valves. The vacuum attachment to the air valve consists of a tight-fitting cap which contains a valve stem and seat, weighted by means of a number of removable washers. In applying these the maximum number of washers is placed on the air valve nearest the boiler. For other radiators, the rough rule is to remove one washer for each 10 ft. away from the radiator nearest the boiler. This adjusts the weight over the area in each cap so that all air valves will discharge at the same time when the pressure drop in the piping is 1 oz. per 100 ft. of pipe.

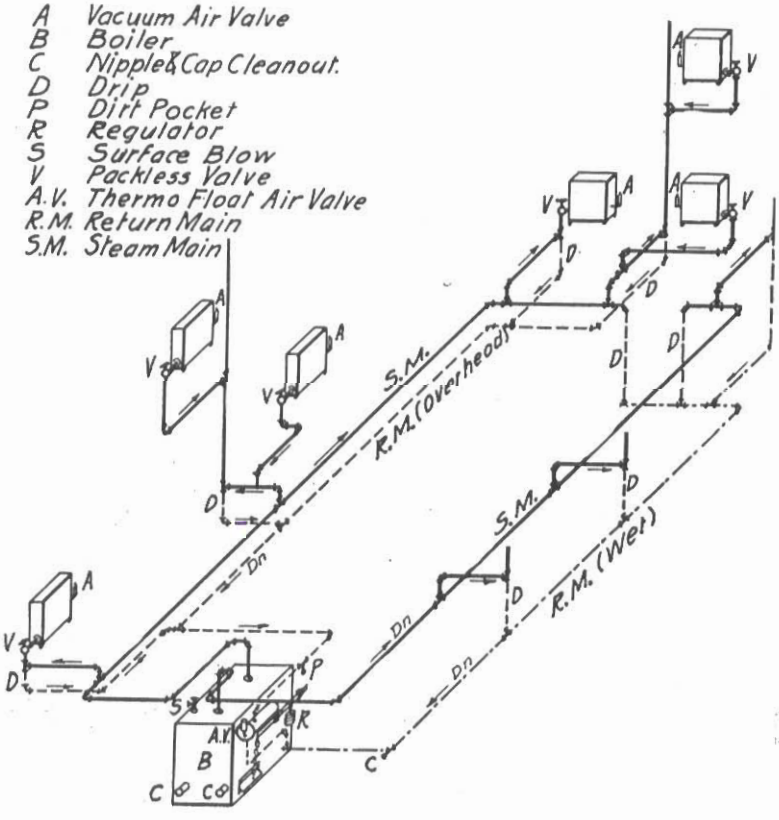

FIG. 1.

(*Continued on Data Sheet No. 132-EE.*)

VAPOR HEATING

The Donnelly Fractional Distribution System.

(*Continued from data Sheet No. 132-DD.*)

In the two-pipe system, in addition to the packless inlet valve, each radiator is provided with an impulse check valve (Fig. 6) at the outlet, together with thermo-float air valves (Fig. 7) located on the dry return mains before they drop to the wet return.

In neither the one-pipe or two-pipe system is it necessary to pass all the returns through the regulator. A typical set of returns is selected most convenient to the particular layout.

In the one-pipe system the other returns may come back wet, or, where conditions require, overhead and then drop to the wet return.

In the two-pipe system the other returns come back overhead, in groups, vented by means of a thermo-float air valve and then drop to a wet return through which the condensation returns to the boiler.

The fractional distribution inlet valve (Fig. 4) consists of a packless valve with an adjustable key-hole-shaped orifice in both the body and the union. By rotation of the union piece any desired opening may be obtained. The pressure drop through this valve is 2 oz. at maximum rating. Higher pressure drops are obtainable by decreasing the area of the orifice.

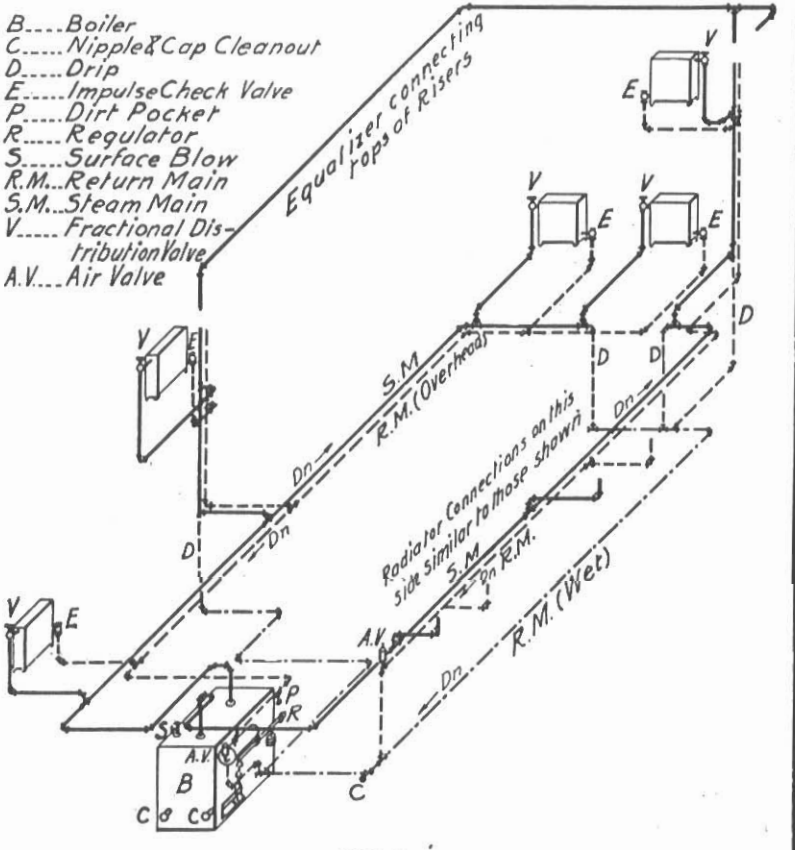

FIG. 2.

(*Continued on Data Sheet No. 132-FF.*)