

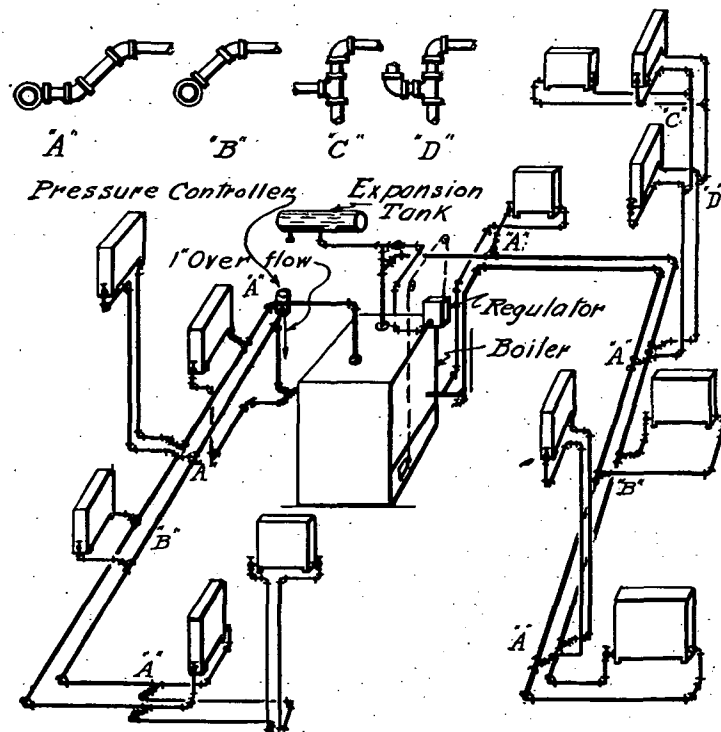


FIG. 9. PIPING CONNECTIONS FOR CLOSED HOT WATER HEATING SYSTEMS

work the engineer, architect or heating contractor, finds little on pipe sizes, etc.

Due to the more rapid circulation of water in an air sealed system 50 per cent more radiation can be supplied than by a gravity connection. Therefore the rules as set forth by F. E. Giesecke, N. S. Thompson and C. A. Fuller in their books on hot water heating can be used to advantage by adding 50 per cent to their formula for house heating. The following table would then be applicable for air sealed hot water system.

TABLE 5. PIPE SIZES AND CONNECTIONS FOR CLOSED SYSTEMS
Amount of Radiating

PIPE SIZE INCHES	FIRST FLOOR	SECOND FLOOR	THIRD FLOOR	FOURTH FLOOR
$\frac{1}{2}$	30	40	50	60
$\frac{3}{4}$	60	75	90	110
1	110	120	135	150
$1\frac{1}{4}$	165	180	200	225
$1\frac{1}{2}$	270	290	315	350
2	450	525	600	750

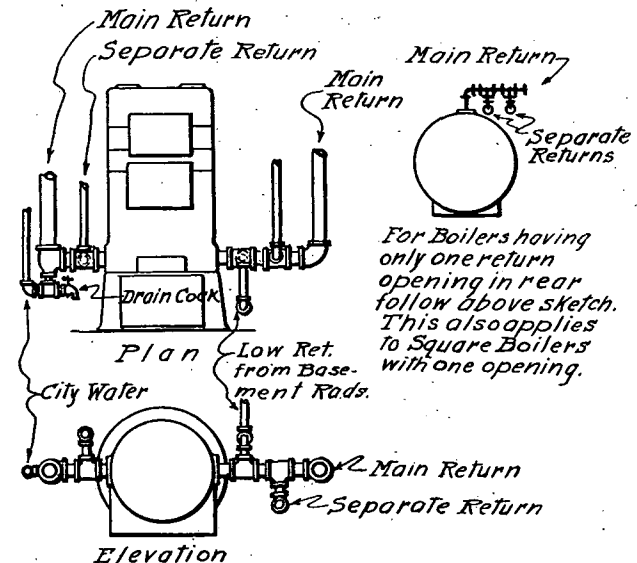


FIG. 10. CONNECTING SEPARATE RETURNS TO BOILER

The piping layout should be designed to conform to the best engineering experience of the engineer. It is not necessary except on very small mains to continue the mains full size to the end for they should end two sizes larger than the last radiator they supply. In all cases mains should end in the first floor radiator. Where a riser extends beyond the last first floor radiator the line running out to it should be treated as a lateral. See plan Fig. 9.

In each case the lateral leading from the main need be no larger than the radiator valve it supplies but care should be exercised that allowance is made for the proper distribution of the water to the radiators. Connections as shown in plan Fig. 9 are recommended, the *B* connection being used on all first floor radiators except right at the boiler where the *A* connection can often be used to advantage. The *C* connection is used on upper floors on the same level to supply two or more radiators from one riser and the *D* connection is used on risers feeding more than one floor and the style of connection should be used on the different floors of a building where it is desired to extend to a floor above.

The area of mains both flow and return must equal or exceed the total area of the valve sizes they are to supply. It is recommended that nearby radiators to the boiler have separate returns and that these return enter the boiler as shown in Fig. 10.

Many sealed systems of hot water heating do not function properly on account of lack of air in the air sealed expansion tank. Tank sizes should conform to the amount of water contained in the heating system, and are based on $12\frac{1}{2}$ lb. of water to the gallon, for tank capacity. The