dripped into the wet-return, the air venting at the end of the main is accomplished by an air vent passing through a thermostatic trap into the dry-return line as shown in Fig. 49. On low-pressure or vacuum systems, the ends of the

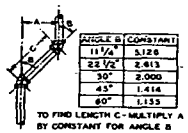


Fig. 48 .... Constants for Determining Length of Offset Pipe

steam mains are dripped and vented into the return through drip traps opening into the return line. A float and thermostatic type trap is recommended for dripping steam mains and risers as indicated in Figs. 50 and 51.

The dripping of high-pressure mains, or of equipment using high-pressure steam into low-pressure or vacuum re-

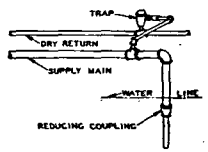


Fig. 49 .... Dripping End of Main into Wet Return

turns, is generally accomplished by the use of a flash tank or flash leg into which the high-pressure trap is arranged to discharge. This tank provides the required space for the flashing from high-temperature condensate to low-pressure

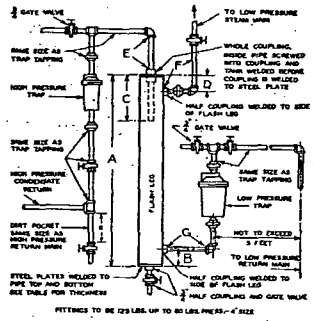


Table 12 .... Dimensions Applying to Fig. 52

Condensate per Hr, lb at 70 Psig	Traps: HP Side: Pipe size	HP Side: Orifice	HP Side: Pres. range, psi	LP Side: Pipe size	LP Side: Orifice	LP Side: Pres. range, psi	Flash Leg, ips	A Ft	B In.	C In.	D In.	E In.	F In.	G In.	Plate Thickness, In.
200	3/4	1/4	21-80	3/4	3/16	0-20	4	3	6	8	3	3/4	1 1/4	3/4	3/8
300	3/4	5/32	31-70	3/4	3/16	0-15	4	3	6	8	3	3/4	1 1/4	3/4	3/8
700	3/4	3/16	31-70	3/4	3/16	0-15	4	3	6	8	3	3/4	1 1/4	3/4	3/8
1500	3/4	3/32	61-80	1	1/2	0-15	5	4	6	10	4	3/4	1 1/4	1	3/8
2500	1	3/32	61-80	1 1/4	3/4	0-15	8	5	6	10	4	1	2	1 1/4	1/2
4000	1 1/4	1/32	61-80	2	1 1/16	0-15	10	6	6	12	5	1 1/4	2 1/2	1 1/2	5/8
8000	2	9/64	61-80	2 1/2	1 1/16	0-15	12	6	6	12	5	2	3	2	3/4
15000	2 1/2	9/64	61-80	2 1/2	1 1/16	0-15	16	6	8	14	6	3	3	3	7/8

Fig. 52 .... Flash Leg Installation for 80 Psi Maximum Steam Working Pressure

CONNECTIONS TO HEATING UNITS

Riser, radiator, and convector connections must not only be properly pitched at the time they are installed, but must

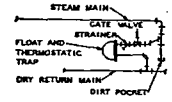


Fig. 50 .... Dripping End of Steam Main into Dry Return

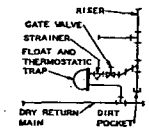
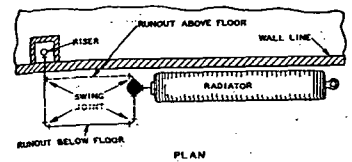


Fig. 51 .... Dripping Heel of Riser into Dry Return

be arranged so that the pitch will be maintained under the strains of expansion and contraction. These connections may be made by swing joints which permit the expansion or contraction to occur under heating and cooling without bending of pipes. To take care of expansion in long risers, either expansion joints of commercial construction or pipe swing joints are used. Anchoring of pipes between expansion joints is desirable.

Two satisfactory methods of making runouts for one-pipe systems for either the up-feed or the down-feed type are



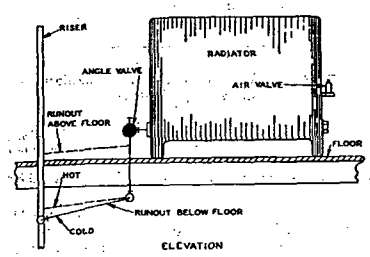


Fig. 53 .... One-Pipe Radiator Connections

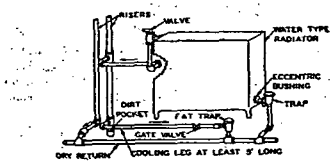


Fig. 54 .... Two-Pipe Top and Bottom Opposite End Radiator Connections

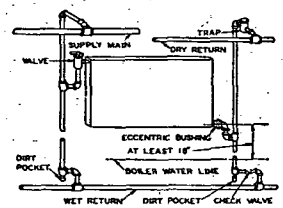


Fig. 55 .... Two-Pipe Connections to Radiator Hung on Wall

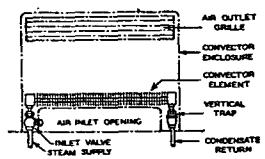


Fig. 56 .... Typical Convector Connections

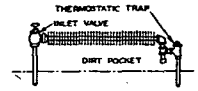


Fig. 57 .... Typical Connections to Finned Pipe Convector

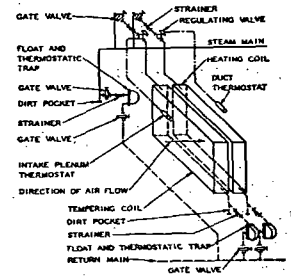


Fig. 58 .... Typical Connections to Finned-Tube Blast Heating Coils Arranged for Series Flow of Air

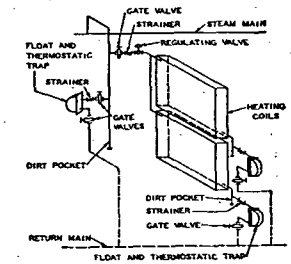


Fig. 59 .... Typical Connections to Finned-Tube Blast Heating Coils Arranged for Parallel Flow of Air

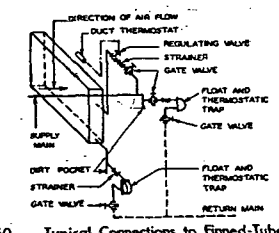


Fig. 60 .... Typical Connections to Finned-Tube Blast Heating Coils of the Steam Distributing or Nonfreeze Type