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CONNECTION FOR HEAT EXCHANGE SYSTEMS

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3 Claims. (Cl. 285—106)

This invention relates to improvements in a connection for heat exchange systems and one that is particularly useful in radiant heat systems.

It is well known in the art of heating and cooling buildings that wall, ceiling or floor areas of such buildings may be provided with pipe or tubes that receive a heating or cooling fluid and conducted throughout the areas according to a predetermined arrangement to either radiate or absorb heat depending on the temperature of the fluid.

This invention has for its object the provision of novel and useful means for installing the tubing or piping in place in the wall, ceiling, or floor of a building into which the system is to be installed.

Another object of the invention has been the provision of a method of coupling tubing for use in a radiant heating system whereby primary supply and return pipes can be readily associated with secondary pipes or tubing through which the final radiation is accomplished.

Another object of my invention has been the provision in such a heating or cooling system of an improved control mechanism for regulating the flow and temperature of the fluid throughout the system.

A further object of my invention relates to a method of preserving the integrity of the surface of the plaster which covers the secondary tubing and the supply and return lines of tubing by preventing any disruptive strains within the plaster due to the alternate expansion and contraction of the tubing.

Other objects and advantages of the invention will be apparent during the course of the following description—wherein I have illustrated a preferred form of my invention.

Figure 1 is a bracketed view of the tubular elements that are coupled together to form an intersection between a supply or return tube and a secondary distribution tube.

Figure 2 is a perspective view of an assembly of supply and return tubes with the secondary distribution tubes associated therewith.

Figure 3 is a plan view of a portion of a ceiling having my system installed thereon and indicating the manner in which it is imbedded in the covering plaster.

Figure 4 is a sectional view taken on lines 4—4 of Figure 3, and

Figure 5 is a sectional view taken on line 5—5 of Figure 3.

In heating an area in a house according to my

invention I propose to provide the heating element or tubing in the ceiling. Under such circumstances a feeder or supply tube 105 is run across an area. In the approximate center thereof and parallel thereto is provided the return tube 106—both of these are of about the same capacity. These are connected respectively to the supply pipe and return pipe of a heating system.

At spaced intervals along the tubes 105 and 106 a notch 107 is formed and a notched saddle fitting 108 is soldered or brazed thereto in the manner clearly shown in Figure 2 so that the notches 107 and the notch 109 in the fitting 108 are coincident with each other. The fluid which may flow through the pipe 105 or 106 may pass into or out of the secondary loops 110 and 111. In a regular installation a secondary loop at 110, for example, has an end inserted into the saddle 108 on the pipe 105 and its other end is inserted into a saddle 108a on the pipe 106. Similarly a loop 111 is associated with the saddles 108 and 108a on the opposite side thereof. It will be seen that hot water flowing through the pipe 105 will flow in both directions from the saddle 108 out around the loops 110 and 111 and then converge again in the saddle 108a to flow back through the tubing 106 to the return header and the heating plant.

To provide a recessed support for the supply and return saddle fitting tubes 105 and 106 spacer blocks 112 are fastened to the opposite sides of a ceiling joist 113 and positioned as shown or a pair of joists in any convenient location in the room. Nailing strips 114 are positioned on the spacer blocks 112 with their lower edge in line with the lower edge of the joist 113. The plaster base or lath 115 is nailed to the strips 114. In this manner a cavity is formed along each side of a joist or along one side of each of a pair of joists in each room to receive the supply and return tubes, 105 and 106 leaving only the saddle fitting 108 and 108a protruding below the face of the plaster base or lath. The several loops 110 and 111 are inserted in saddle fittings 108 and 108a and fastened to the lower face of the plaster base or lath. A wire mesh 116 is then stretched below the loops and is anchored by means of nails 117 nailed through to the joist to form a supporting member for the loops 110 and 111 and to act as a plaster reinforcement.

Plaster is troweled over the whole structure. As the plaster hardens after a predetermined period of time has elapsed, it is conventional practice to heat the fluid in the system and per-

mit it to flow throughout the distribution system comprising the feed and return pipes 105 and 106 and the distribution loops 110 and 111 which would thereupon expand and in the hardening material around them form pockets.

In this instance the temperature is ordinarily run up higher than would be normally used so that a maximum degree of expansion can be obtained. The formation of these pockets which will always be present in the plaster, for example, will provide room for any subsequent expansion and contraction that may take place in the distribution system in ordinary use and thus will be avoided unnecessary cracking of the plaster.

I claim:

1. For use in heat exchange system wherein secondary tubing is connected with primary tubing, a connection comprising: a tubular member having a port in its wall, and a ported conductor member secured to said tubular member transversely thereof with the axis of the tubular mem-

ber being substantially tangential with the bore of the conductor member, the ports of the two members being positioned for fluid intercommunication from one member to the other member.

2. A connection comprising: a tubular member having a port in its wall, and a conductor member being secured to said tubular member transversely thereof with the bore of the conductor member being inset into the bore of the tubular member and the ports of the two members being in position for fluid intercommunication from one member to the other member.

3. A connection for use in heat exchange systems, said fitting comprising: a body having a fluid conduction passage therethrough, said body having a second fluid conduction passage there-through transversely of the first passage, the axis of one of said passages being substantially tangential with an edge of the other passage.

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