CHAPTER XIII.

Assembling Casings and Constructing Air Filters

Casing with Air Space

A simple method of construction which gives an air space between the inside and outside metal walls so as to avoid heating the cellar is shown in Fig. 174. Make

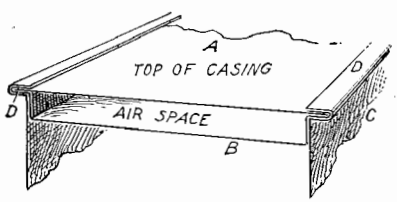

Fig. 174—Constructing Top of Casing with Double Walls, Giving Air Space

the air space as wide as required and add a lock to B which holds the top of the casing A as shown. Form the side wall C as shown, which locks over the lock previously made at D. This same method can be applied to the bottom and sides. If desired the air space can be filled wth asbestos.

Angle Iron Frame for Casing Top

To stiffen and strengthen the top of the casing, a wooden frame is sometimes placed on the inside, made of 1x3 inch wood strips covered with galvanized iron; but more often an angle iron frame is used, as shown in Fig. 175. The holes in the top at a a, etc., are for

fastening it to the beams, and the holes at **b b**, at the sides are for fastening it to the sides of the casing.

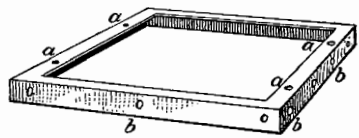

Fig. 175—Angle Iron Frame for Inside of Top Casing

Assembling the Casings

The usual method of putting up the casings, whether the beams are of wood or iron filled with concrete, is to—

First, decide where the radiator is to be located, then to fasten the upper part of the casing in its proper position by nailing or screwing it in place, as this part remains permanent and supports the remainder of the casing. If the beams are of wood and a wooden frame is used inside of the casing, this can be nailed or screwed to the beams. If the beams are of iron and filled with concrete and an angle iron frame is used inside of the casing, then the angle iron frame would

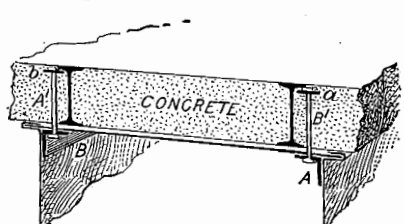

Fig. 176—Using the Angle Iron Frame Inside of Top Casing

be fastened as shown in Fig. 176, fastening the angles A B by means of the bolts A1 and B1 which pass

through the concrete as shown, and have large washers below the nuts at **a** and **b**. Holes having been previously punched in the top of the casing, the hangers are fastened with lag screws into the beams or cross headers if they are necessary, if they are of wood. If the beams are of iron filled with concrete, then large bolts are passed through the concrete or fire proof blocks and bolted over large iron washers on the top of the floor. After the hangers are in place, and the radiator set, and steam connections made, the various sides, inner partitions and bottom of the casings are then locked or bolted together.

Clean Out Slides and Doors

When the clean out under the casing is made in the form of a slide and sliding groove it is constructed, as clearly shown in the sectional view in Fig. 177, in which A represents the slide and B the sliding groove.

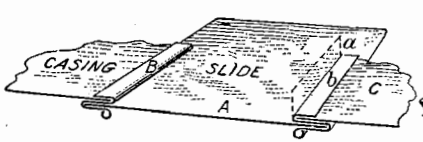

Fig. 177—Sectional View Through Clean-Out Slides

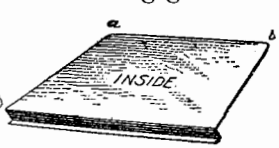

Fig. 178—The Slide Complete

This groove is first bent in the manner shown by **a**, inserted in the opening which is cut in the bottom of the casing C, when **a** is flattened down as shown by **b**. A beaded edge is made at **c** for stiffening purposes. The slide itself should be made of number 16 galvanized iron to insure stiffness, and have a hemmed angle at the outer end to use in grasping it, as shown in Fig. 178, and have the corners rounded at **a** and **b** to prevent the slide from binding when it use. When the clean out is made in the form of a hinged door, it is

constructed so as to insure a tight fit, as shown in the section in Fig. 179, in which A represents the bottom of the casing, B the metal frame, C strips of sheet felt or rubber about one-eighth of an inch thick, clamped tightly into the groove at D. A wired edge is shown

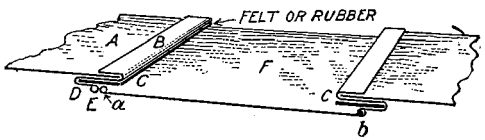

Fig. 179—Horizontal Section Through Hinged Clean-Out Door on Rubber or Felting

at E. F represents the door, which is hinged at **b** and closes tightly against the rubber or felt by means of the beaded edge **a**, and is held by means of a turnbuckle, as previously explained.

Duct Connecting Flush with Top of Casing

When the warm or cold air duct is connected flush with the top of the casing, the connection is made

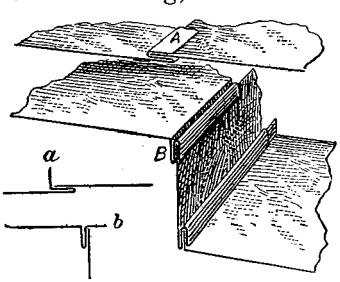

Fig. 180—Connection Between Cold or Warm Air Duct and Casing

as shown at A in Fig. 180, and B shows how the connection is made when the bottom of the duct is at right angles to the side of the casing. Previous to turning

down the locks onto the body of the casing at A and B, the flanges on the duct have the positions shown by **a** and **b** in the sketches below.

Lining Cold Air Chambers

Sometimes in place of using sheet metal casings, cold air chambers are constructed of wood and lined with galvanized iron. This lining is done in such a manner that the nail heads will be hidden, so as to prevent the nails from coming out. This method of

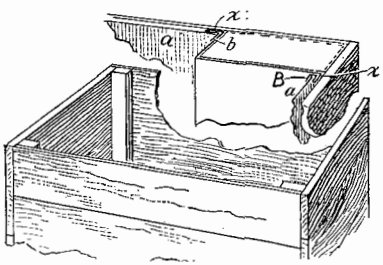

Fig. 181—Method of Lining Wooden Cold Air Chamber with Sheet Metal

construction is shown in Fig. 181, in which the metal covering the corner posts is bent as indicated and nailed through the doubled metal at **x** and **x**; then after the sheet **a** is placed in position, the edge **b** is turned over and tightly closed, as at B. The same method of construction can be used if an internal angle were desired as shown by the dotted lines.

Constructing Cold Air Cleansers

To insure a supply of pure cold air, the cold air duct should be provided with a close mesh screen or brass strainer cloth at its mouth, having about 48 wires to the inch, also a tight-fitting damper, so that the volume

of air may be regulated on a very windy day. To prevent the entrance of dust, etc., by other means than is possible with the ordinary mesh, an air cleanser can be used which is made from cheesecloth similar in construction to that shown in Fig. 182, in which the

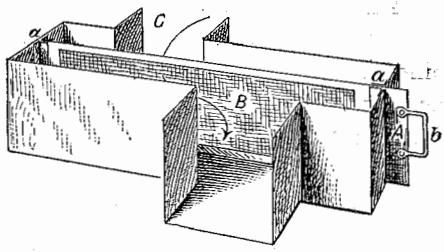

Fig. 182—Single Air Cleanser

outer cold air enters at C, passes through the cheesecloth strainer B and is thus filtered before it passes over the heaters or radiators. The cheese-cloth is fastened to the metal slides A, which runs in grooves

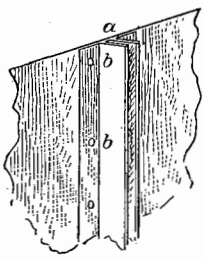

Fig. 183—Groove to Receive Sliding Frames

Fig. 184—Section Showing Metal Frame Cheese-Cloth and Clamping Frame

shown at **a** and **a**, having a handle at **b** for removing for the purpose of cleaning. While brass strainer cloth should be used in place of cheese-cloth, the

cheese-cloth is considered more sanitary because it can be destroyed when dirty and replaced.

The grooves for the slides are formed and fastened by being bent as shown by **a** in Fig. 183 and riveted through flanges against the sides of the duct at **b b.**

In Fig. 184 is shown a sectional view of the metal frame carrying the brass mesh or cheese-cloth and the clamping frame. The frame A is made of the proper size, riveting the corners to insure stiffness. The top, bottom and end which enters the duct have equal margin, but the end to which the handle is riveted is of sufficient width to insure the proper

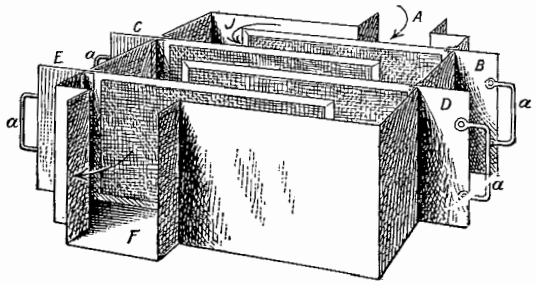

Fig. 185—Quadrupled Air Cleanser, Using Cheese-Cloth on Metal Frames

size opening on the inside, as indicated in Fig. 182. When brass cloth is used as a cleanser, the frame A in Fig. 184 is all that is required, over which the brass cloth is fastened as shown at B, and remains permanent, and in cleaning, is thoroughly brushed. When cheese-cloth is used, it is also folded over the metal frame A, but held in position by means of a binding clamp C. This clamp is made in four pieces, one for each side, and fits snugly over the cheese-cloth and frame. When the cloth becomes dirty, the slide is removed, the clamps taken off, the old cloth removed,

and new inserted, over which the clamps are again placed, ready for use. The illustration shown is exaggerated, as to clearly show the construction.

If a more thorough cleansing of air is desired, a quadrupled air cleanser can be installed by using four cheese-cloth slides as indicated in Fig. 185, two on each side placed alternately as shown. The proper size slot is cut into the sides of the chamber, so that the metal frames will slide and yet fit snugly, by using the handles **a a**, etc. The outer cold air entering at A must pass through the cheese-cloth filters B, C, D and E, so that the air becomes thoroughly filtered when it passes through the duct F previous to being heated. Even though the cold air should pass around in the direction of J, it must always first pass through the cheese-cloths, before it can enter at F.