

## CHAPTER X.

### CONNECTING HEATING AND VENTILATING DUCTS

#### Connections with Brick Flues

A mistake is often made in finishing the brick ventilating flues at the attic floor line, previous to connecting same to sheet metal ducts. The brick flue is usually built up flush with the floor line, as shown in Fig. 150, which is incorrect; because the metal duct must then be connected by means of flanging inside of the brick flue, also flanging on the outside and nailing to the floor, which does not make an airtight connection.

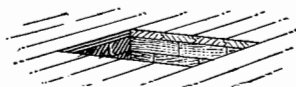


Fig. 150—Incorrect Way of Finishing Brick Shaft to Receive Sheet Metal Connection

The connection should be made between the brick flue and metal duct, so as to insure an airtight joint, as shown in Fig. 151. The brick flue should be stopped at B, or about three courses below the floor level, after which the metal connection shown by A, with 3-inch flanges around its base, as **a a**, is set on the brick level at B, being careful to have the metal bases painted with metallic paint and dried before setting. The three courses are now built up to **b b**, over which

the floor is laid. This method makes a neat, clean, tight joint, and avoids any nailing at the floor line.

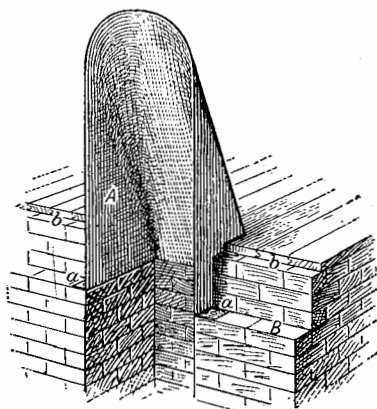


Fig. 151—Sectional View of Airtight Sheet Metal Connection to Brick Flue

When sheet metal ceiling ducts are to be connected, airtight, to vertical brick flues, this connection is made

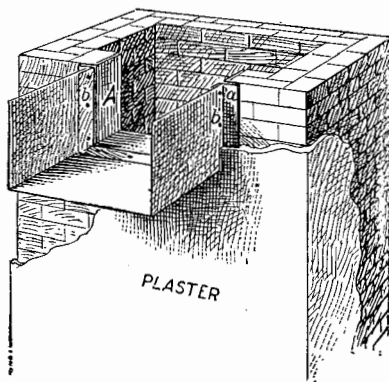


Fig. 152—Sectional View Showing Sheet Metal Ceiling Duct, Connected Airtight to Vertical Brick Flue

as shown in Fig. 152, in which A shows the formation of the collar fitting into the brick opening, this collar being riveted to the duct at **b b**, before connecting to the brick flue. After the connection is made, a wire nail can be driven through the flange into the brick joint at **a**. When the connection is completed and the plaster is put in place, the joint between the metal duct and brick flue will be airtight.

### Connecting Collars to Round Pipes

When round pipes are to be connected to round pipes, as in a blower system, the connections are made as shown by the diagrams in Fig. 153, in which B

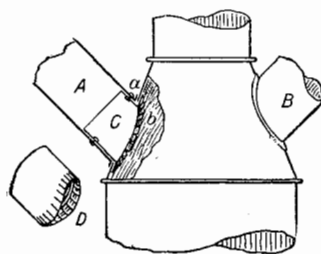


Fig. 153—Method of Flanging Round Collars to Round Pipes in a Heating or Ventilating System

shows the appearance of a finished connection between a round pipe and tapering joint, and A the constructional view. After the proper size opening has been cut in the tapering joint, the pipe A is first flanged outward, as shown by **a**. A collar, C, is then riveted to the pipe A, allowing it to project one inch beyond the flange of the pipe, and notching same at intervals, thus giving the appearance shown at D. The connection is now passed through the opening in the tapering

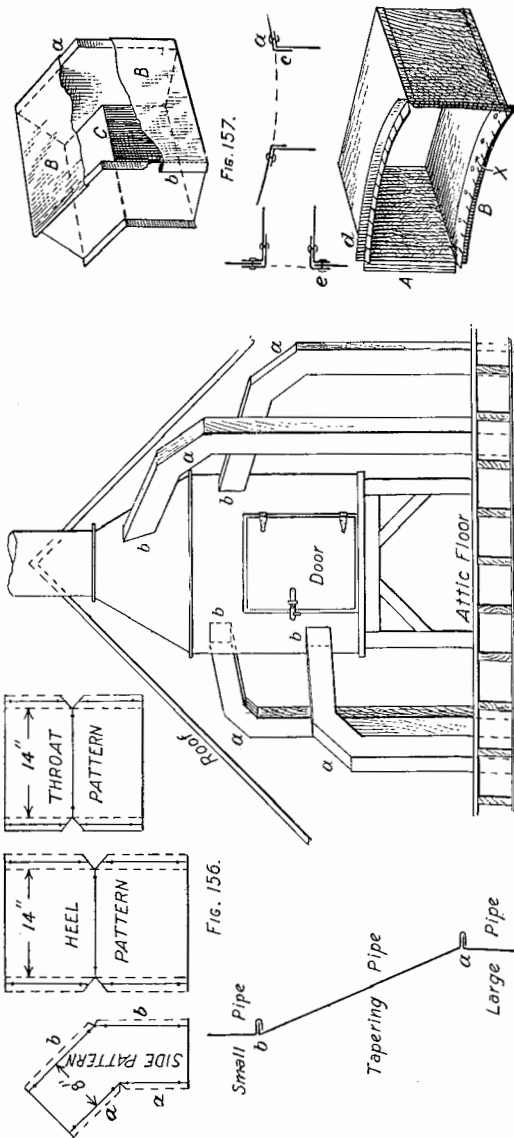


Fig. 154—Method of Double Seaming Tapering Joint  
 Fig. 155—Layout of a Rectangular Two-Pieced Elbow  
 Fig. 156—Method of Seaming Corners in a Two-Pieced Elbow  
 Fig. 157—Method of Flanging and Connecting Square or Rectangular Pipes to Round Drum

Fig. 155—Connecting Vent Pipes from Attic Floor to Drum

Fig. 154—Method of Double Seaming Tapering Joint  
 Fig. 156—Method of Seaming Corners in a Two-Pieced Elbow

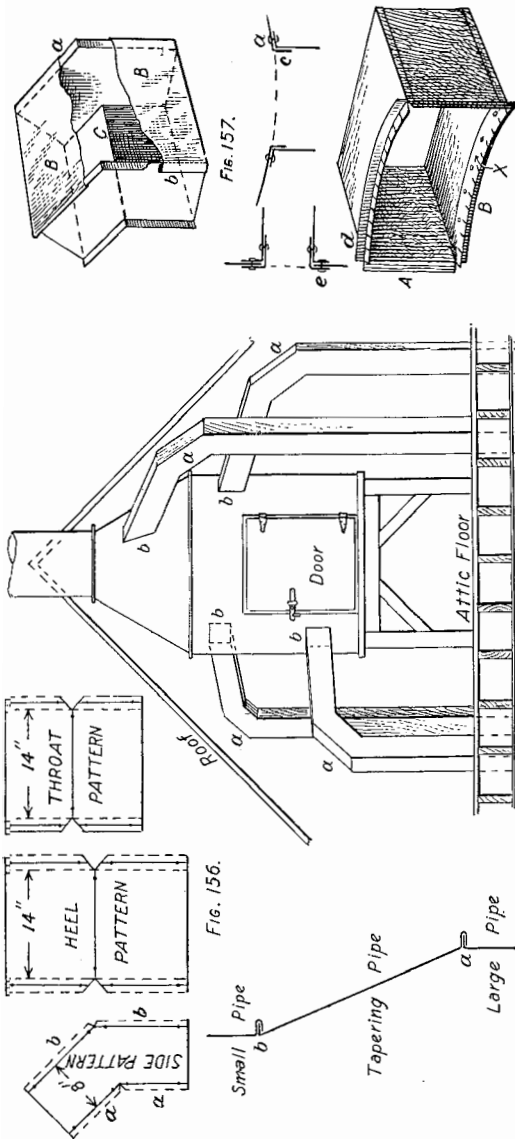


Fig. 154—Method of Double Seaming Tapering Joint  
 Fig. 155—Layout of a Rectangular Two-Pieced 45° Elbow  
 Fig. 156—Method of Seaming Corners in a Two-Pieced Elbow  
 Fig. 157—Method of Flanging and Connecting Square or Rectangular Pipes to Round Drum

Fig. 155—Connecting Vent Pipes from Attic Floor to Drum

Fig. 154—Method of Double Seaming Tapering Joint  
 Fig. 156—Layout of a Rectangular Two-Pieced 45° Elbow

**Connecting Rectangular or Square Ducts to Drum**

When rectangular ducts or pipes are connected to a round drum, the ducts are flanged and the connections made as shown in Fig. 158, which shows a perspective view of the flanged rectangular pipe. It will be noticed that the part meeting the curved part of the drum is flanged outward, as at **d**, while the side meeting the vertical part of the drum has a straight flange as at **A**. To the curved flange **B** a separate curved strip is riveted, as shown at **X**. Now, when connecting this duct to the drum, flange **A** is riveted to the body of the drum as indicated at **a** in the diagram above, a flange being left on the drum to enter the duct at **c**. The curved flange of the duct shown at **d** is set tightly against the drum, and the notched flange **X**, turned inward as at **e** in the diagram above, after which the rivet secures the three thicknesses of the metal.

**Constructing Air Tight Door in Drum**

The method of constructing the drum door and frame, also how it is secured to the drum body, are clearly shown in Fig. 159. **A** and **A** show part of the body of the drum, cut out to receive the door frame, with a lap allowed for riveting purposes at **a** and **a**. **B** shows the outer side of the frame, flanged and riveted to the drum body at **b** and **b**. **C** shows the inner formation of the door frame, which is flanged and riveted to the outer side **B** at **c**. The formation of the door proper is shown at **D**, being so formed that a snug fit is obtained against the frame **C**. The door is made in three sections, making the seams at **d d** and **e e**, a wooden core being placed on the inside as indicated by **E**, to give rigidity. The miter of the door

frame is shown by F G, which should be well lapped and soldered. The door is hinged to the frame B by means of galvanized iron hinges shown at H J, J being bolted to the metal on the side, while H is screwed through the metal face into the wooden core. A clasp is made from band iron, as shown by K, with a handle

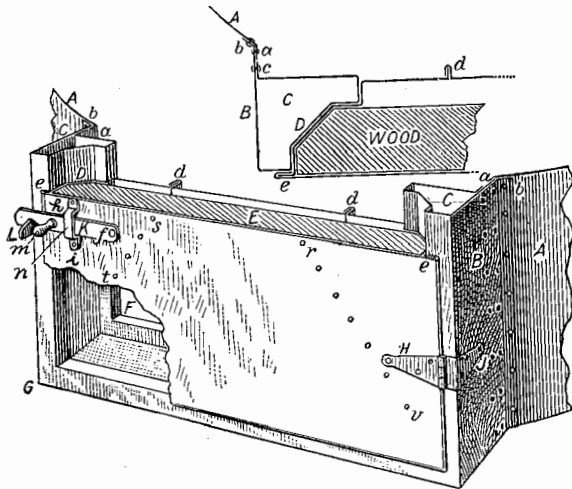


Fig. 159—Construction of Door in Drum

or knob riveted to same at *m*. A loose wood screw is put in at *f*, which acts as a pivot when the clasp is raised or lowered. The stop *n* is fastened at *h* and *i*, while the lock *L* is notched to receive the latch *K*, and is bolted to the side of the frame. The metal on the face of the door is prevented from buckling by diagonal nailings, as shown at *s t* and *r v*. A horizontal section of the door is shown above.

### Connecting Curved Branches to Main Duct

When a curve branch is taken from or connected to a main pipe, the connecting joint is constructed as shown in Fig. 160, in which A is the curved branch and B the main pipe. They are connected by means of the locked joint at a b and c. A section through

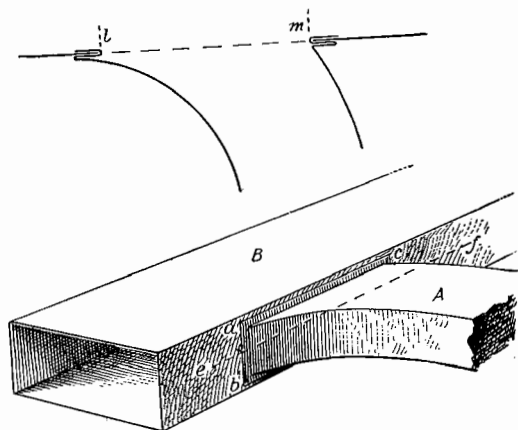


Fig. 160—Connecting Branch to Main Duct

the joint on e f is shown just above, in which the dotted lines l and m show the position of the inner edge after it is inserted in the opening of the large duct, after which it is turned over as shown by the full lines. The joints above and below are constructed in the same manner.