

should prevent the whole apparatus being made of boiler plate, as by that means, the joints being all riveted and calked would be more certainly air tight than would be cast iron plates with cement and sand joints, &c.

The inside of the fire box to a certain height to be lined with fire bricks or soap stone, thereby preventing the air from being brought into contact with any red hot surface which would probably rob it of part of its oxygen or life sustaining qualities.

One furnace on the present improved system is adequate to warming any ordinary sized house of three or four stories with basement and attics: for a smaller house and one with a very low basement story it would evidently be an easy matter to lower the height of the apparatus and diminish its heating surface by the suppression of one or two series of tubes, which would cause but a very trifling alteration in the models used to cast the front and rear smoke boxes and not the least alteration in any other part of the apparatus.

For a house of larger dimensions two or three furnaces should be built within one brick vault—the advantage of the arrangement being that a fire might be lighted in one or more of them in pro-