(No Model.)

E. J. MOORE.

STEAM BOILER.

No. 267,241. Patented Nov. 7, 1882.

FIG I.

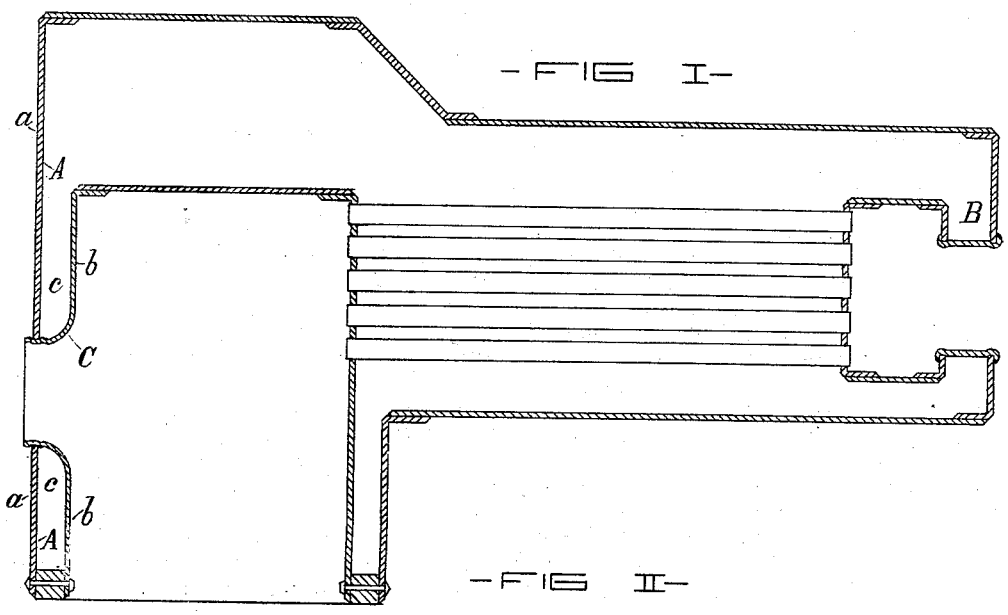
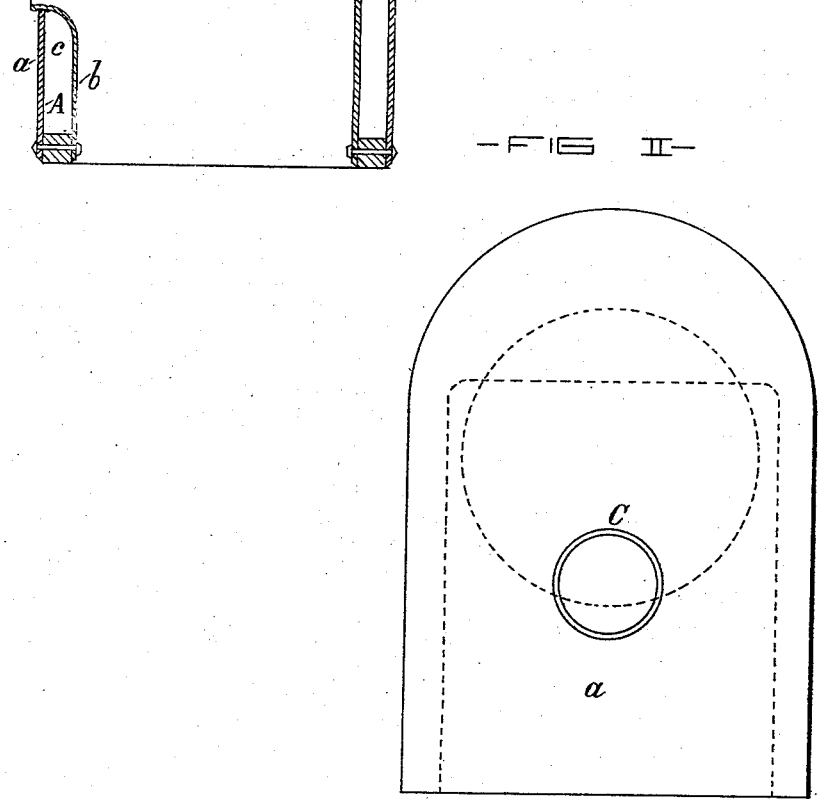


FIG II.



WITNESSES

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EDWARD J. MOORE, OF BALTIMORE, MARYLAND.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 267,241, dated November 7, 1882.

Application filed April 20, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. MOORE, of the city of Baltimore, and State of Maryland, have invented certain Improvements in the Construction of Steam-Boilers, of which the following is a specification.

This invention relates to a peculiar construction of the wall or leg of the furnace or back connection of a steam-boiler and the door-frame which is secured therein, the object being to dispense with the employment of rivets or other analogous fastening devices. In the further description of my said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure I is a longitudinal section of a locomotive-boiler embodying my improvements, and Fig II an exterior front view of the same.

Similar letters of reference indicate similar parts in both views.

A is the front wall of the furnace, which consists of the outer and inner sheets, respectively, (represented by *a* and *b*,) which are separated by the water-space *c*.

B is the outer wall of the back connection.

C is the frame of the furnace-door, formed by flanging out the inner sheet, *b*, and its outer end is secured within a circular opening in the front sheet, *a*, by expansion, in a manner similar to the expansion of boiler-tubes in a tube-sheet, as will be seen by reference to the drawings. It will be understood that by this means of securing the frame to the front or outer sheet, *a*, no rivets are required.

Where the width of the water-space is too great to allow of the flanging of the inner sheet the frame may be made separate and expanded in the inner as well as the outer sheet, as shown in the wall of the back connection.

It will be understood that the front sheet, instead of the inner one, may be flanged; but I prefer the design shown in the drawings.

Among the many advantages of a door-frame expanded within the boiler-leg, as described, over the ordinary flanged frame are the following: An ordinary flanged door-frame has to be placed in position before the inner and outer sheets of the leg are in place, and it is a difficult matter, in many cases, to "hold on" to the rivets which are used to make the connection. A flanged door-frame must necessarily be of thicker iron than is requisite for strength to allow for its reduction in flanging, and as it is constantly subjected to a varying heat in the opening and closing of the furnace-door its expansion and contraction, in view of its body being thicker than the flanges and the sheets to which they are secured, is a continual source of leakage, as is well known to those conversant with the practical operation of steam-boilers. The expanded door-frame can be made of the same thickness as the metal to which it is secured. Consequently no unequal expansion and contraction can take place. The flanged door-frame cannot be easily removed in case of repairs, and if removed another frame of the same character cannot be applied without cutting out the front or back sheet to form an opening as large as the flanged frame and patching it. My door-frame can be removed and another one substituted for it at a trifling cost and without any injury to the boiler proper.

I am aware that air-tubes and hollow stays have been secured in the legs of furnaces by expansion, that it is common to fasten tubes in a tube-head in a similar manner, and that the inner sheet of a furnace-wall has been flanged out and secured to the outer sheet by means of rivets. I do not therefore claim broadly a tube secured within the leg of a boiler; but

What I do claim is—

In combination with the wall or leg of a boiler, consisting of an inner and outer sheet separated by a water-space, a circular door-frame having an enlargement at one or both ends effected by expansion, whereby the said frame is held within an aperture or apertures in the said sheet or sheets, substantially as and for the purpose specified.

EDWARD J. MOORE.

Witnesses:

WM. T. HOWARD,

W. S. WILKINSON.