

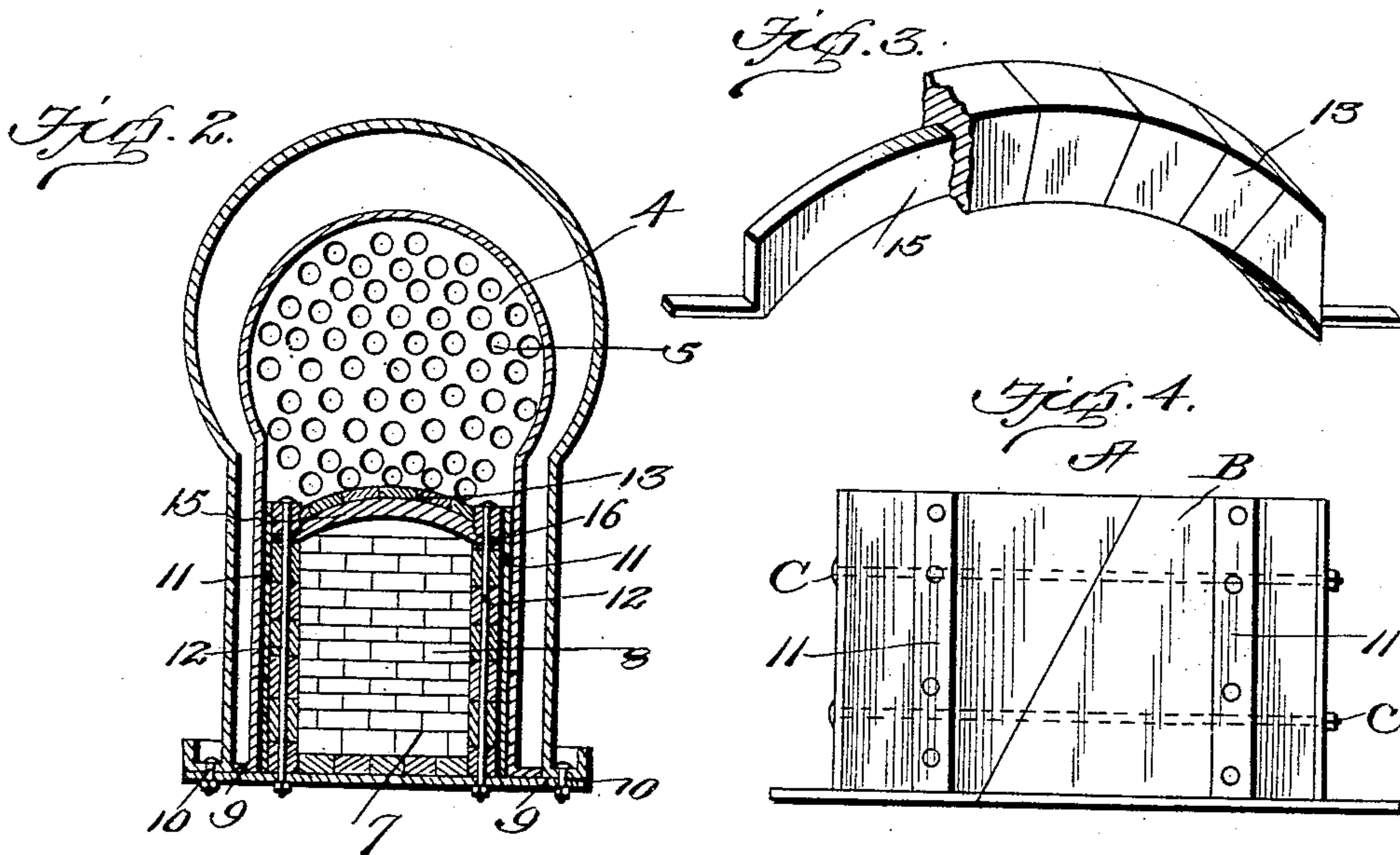
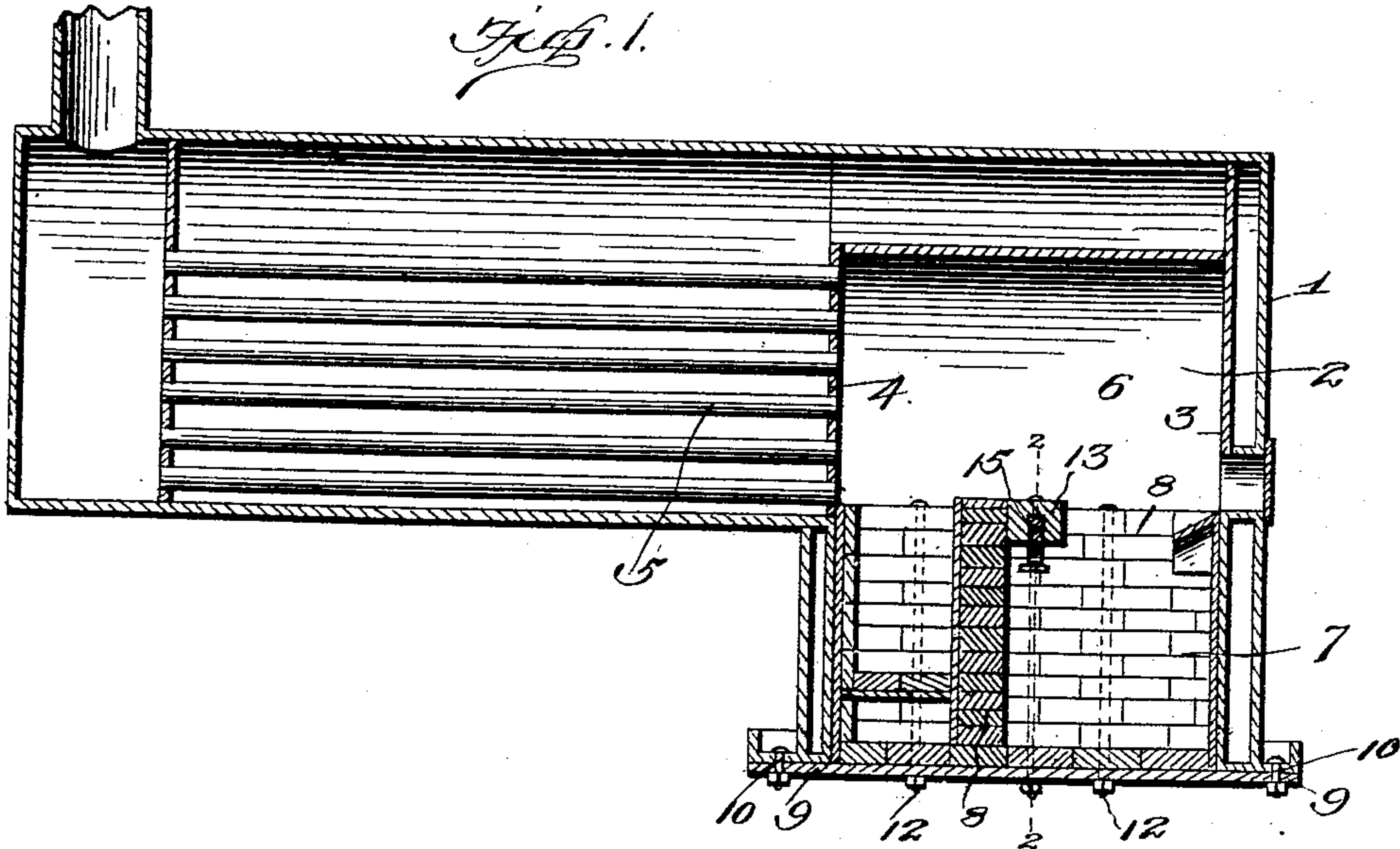
No. 713,473.

G. W. MEACHER.
FURNACE.

Patented Nov. 11, 1902.

(Application filed July 17, 1902.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE WASHINGTON MEACHER, OF HOUSTON, TEXAS.

FURNACE.

SPECIFICATION forming part of Letters Patent No. 713,473, dated November 11, 1902.

Application filed July 17, 1902. Serial No. 115,946. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WASHINGTON MEACHER, a citizen of the United States, residing at Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in Furnaces; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to furnaces, and particularly to locomotive-boiler furnaces of that kind using fuel-oil.

The object of the invention is to provide a novel construction of furnace of this character having a fire-box mounted therein in such manner as to permit of the ready removal of the box whenever repairs or the substitution of new for worn-out parts is required, the main purpose being to provide for the quick and convenient replacement of the brick lining of the box when occasion requires.

With the above and other objects in view, the nature of which will readily appear as the invention is better understood, said invention consists in certain novel features of construction and combination and arrangement of parts, which will be hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of a locomotive-boiler furnace embodying my invention. Fig. 2 is a vertical cross-section of the same on line 2 2 of Fig. 1. Fig. 3 is a broken detail view of an arch and its supporting-bow. Fig. 4 is a view of a modified form of fire-box.

Referring now more particularly to the drawings, 1 represents the outer shell of the furnace, 2 the inner shell, 3 the front wall, 4 the crown-sheet, and 5 the tubes or flues mounted at one end in said sheet.

The heating-chamber 6, formed by the front wall, crown-sheet, inner shell, and top of the outer shell, is open at the bottom for the insertion and removal of the sheet-metal fire-box 7, which is lined on the interior with fire-brick 8 and provided at its bottom with an offstanding circumferential flange 9, detachably fastened to the bottom of the inner shell by bolts or other preferred fastenings 10. This box snugly fits the heating-chamber be-

low the plane of the flues or tubes and is independent of attachment to the shell except at the bottom, whereby the box may be removed without interference upon detaching the nuts from the bolts 10. By this means the box may be quickly removed to give convenient access to the fire-chamber for repairs or refitting of the tubes or other parts or to the box for replacement of the fire-brick lining. The box may be reinforced inside or out by metallic straps 11.

Tie-bolts 12 extend vertically through the bottom of the fire-box and rows of brick and securely fasten the latter, so that they cannot become displaced. The bricks forming transverse arches 13 and 14 are grooved or recessed to receive bowed or arched metal braces 15, having reduced ends 16 embedded in the brickwork at the sides of the box, whereby said arches are firmly supported.

In adapting the box for application to passenger-locomotive furnaces it is necessary to construct the box in sections in order that the same may be applied and removed in disassembled condition to pass the underlying axle. To this end I form the box of interfitting sections A and B, united by one or more tie-bolts C, as shown in Fig. 4.

From the foregoing description, taken in connection with the accompanying drawings, it is thought that the construction, mode of operation, and advantages of my improved furnace will be readily apparent without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a locomotive-boiler furnace, the combination with a boiler-shell having a fire-chamber open at the bottom and provided with a support for the adjacent ends of the flues, of a brick-lined sheet-metal fire-box insertible and withdrawable through said bottom opening, said box being composed of interfitting sections, means for connecting said sections, and means for detachably connecting the fire-box to the shell, the box being

independent of connection with the tubes, whereby it may be applied and removed without interference upon the disconnection of said fastening means, substantially as and for
5 the purpose set forth.

2. In a locomotive-boiler furnace, the combination with a boiler-shell having a fire-chamber open at the bottom; of a sheet-metal fire-box insertible and withdrawable through
10 said bottom opening and detachably connected with the shell, fire-bricks lining the box, and tie-bolts uniting the bricks together and to the box, substantially as described.

3. In a locomotive-boiler furnace, the combination with a boiler-shell having a fire-chamber open at the bottom; of a sheet-metal

fire-box insertible and withdrawable through said bottom opening and detachably connected with the shell, fire-bricks lining the box, tie-bolts uniting the bricks together and
20 to the box, fire-brick arches across the box, and arched plates supporting the arches and anchored at their ends in the brickwork lining the sides of the box, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE WASHINGTON MEACHER.

Witnesses:

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