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G. O. STURTEVANT.

STEAM BOILER.

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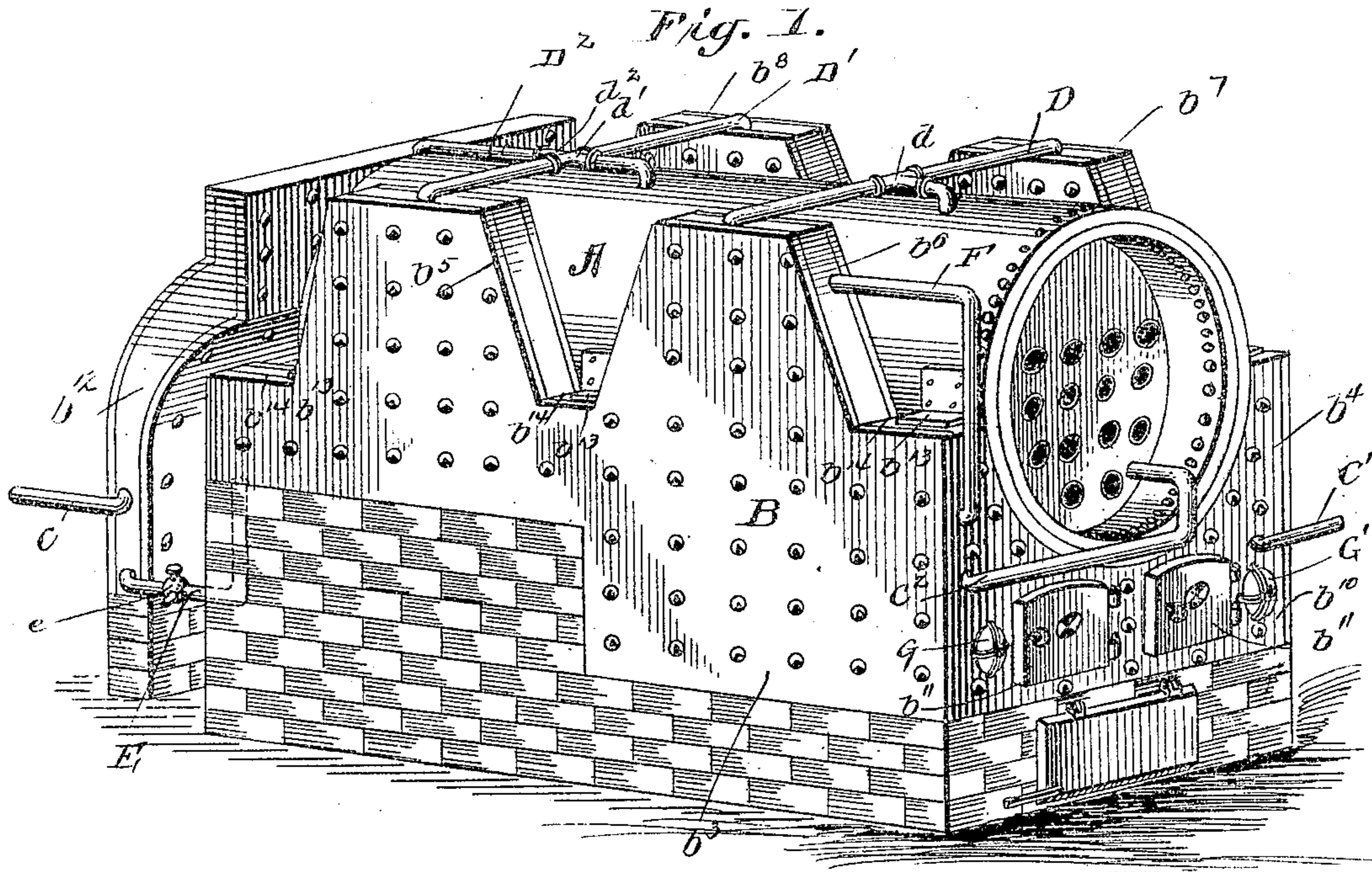
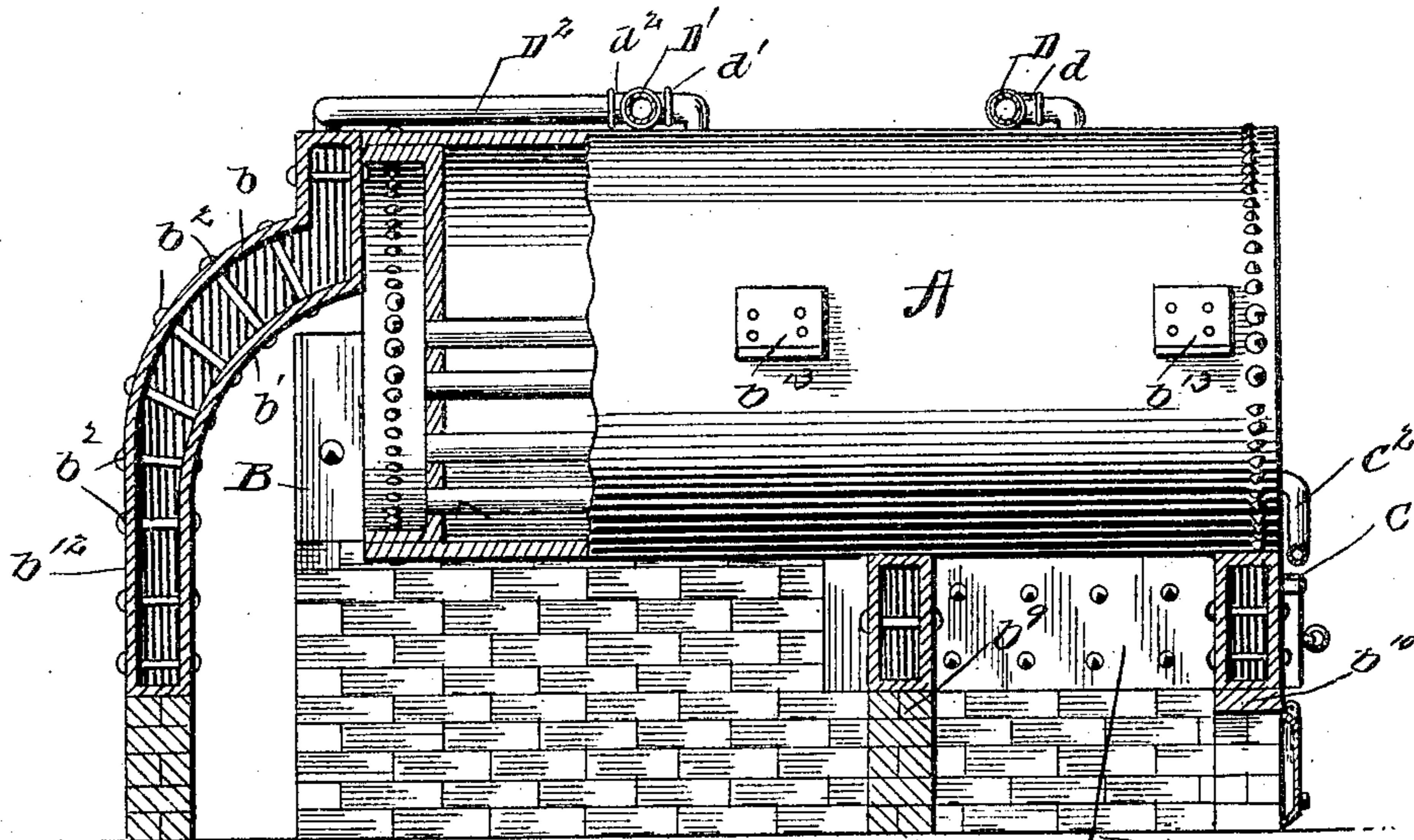


Fig. 2.



WITNESSES:

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STEAM-BOILER.

No. 798,542.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE O. STURTEVANT, a citizen of the United States, residing at Athol, in the county of Worcester and State of Massachusetts, have made certain new and useful Improvements in Steam-Boilers, of which the following is a specification.

My invention is an improvement in steam-boilers; and it consists in certain novel constructions and combinations of parts hereinafter described and claimed.

Referring to the drawings forming a part hereof, Figure 1 is a perspective view of my boiler, and Fig. 2 is a longitudinal section thereof.

In the practical application of my invention I provide a boiler A of ordinary construction and for supporting the same a lining B instead of the usual brickwork, the brickwork being carried up only as far as the grate-bars. The lining B is composed of plates $b\ b'$, spaced apart and secured together by stay-bolts b^2 , and comprises side walls $b^3\ b^4$, each provided with a plurality of upward extensions $b^5\ b^6\ b^7\ b^8$, respectively, a centrally-arranged cross-wall b^9 , and an end wall b^{10} , having openings b^{11} therethrough for the ingress of fuel. It will be understood that the opening between the plates is continuous in all of the walls.

At the rear of the boiler I arrange the arched lining b^{12} , constructed in a similar manner to the supporting-lining. The boiler is supported on the cross-wall and end wall and by angle-plates b^{13} , resting on suitable seats b^{14} between the extensions and at the front and rear end of the side wall.

Water-feed pipes C C' connect the supporting-lining and the arched lining, respectively, with a source of water-supply, and the water-feed pipe C² connects the front of the boiler with the supporting-lining.

Steam-pipes D D' extend between the oppositely-disposed upward extensions across the boiler and are connected by T-joints $d\ d'$ with pipes leading from the boiler, while a steam-pipe D² extends from the arched lining and is connected with the cross-pipe D' by a T-joint d^2 .

A water-circulation pipe E connects the arched lining with one of the side walls at the lower parts thereof, and a water-column F extends from the front end of the left side wall upwardly and inwardly to the forward extension of that side.

With my construction of boiler and support I am able to secure a maximum of heat, since all the radiation from the furnace-wall is utilized in heating the water. The radiation from the boiler is also utilized to a considerable extent.

The lining is provided with a five-inch water-space and may be made to fit any boiler, and for convenience in cleaning the same I provide the hand-holes covered by the plates G G' and the blow-off e on the pipe E.

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

1. The combination of a steam-boiler, a supporting-lining therefor composed of plates spaced apart and secured together by stay-bolts, and comprising side walls, provided with a plurality of oppositely-arranged upward extensions, a centrally-arranged cross-wall, and an end wall provided with a plurality of openings therethrough for the ingress of fuel, a similarly-constructed arched lining at the rear of the boiler, water-feed pipes connecting the supporting-lining and the arched lining with a source of water-supply, a water-circulation pipe connecting the arched lining with the supporting-lining, a water-feed pipe connecting the front of the boiler with the supporting-lining, steam-pipes connecting the opposite extensions with each other, and with the boiler, a steam-pipe connecting the arched lining with the boiler, and a water-column connecting the end of a side wall and its extension.

2. The combination of a steam-boiler, a supporting-lining therefor composed of plates spaced apart and secured together by stay-bolts, and comprising side walls provided with a plurality of oppositely-arranged upward extensions, a centrally-arranged cross-wall and an end wall provided with a plurality of openings therethrough for the ingress of fuel, a similarly-constructed arched lining at the rear of the boiler, means for supplying water to the arched lining and the supporting-lining, means permitting the circulation of water between the arched lining and the supporting-lining, means permitting the circulation of water between the boiler and the supporting-lining, means for permitting the passage of steam from the supporting-lining and the arched lining to the boiler, and a water-column connected with the front end of a side wall.

3. The combination of a steam-boiler, a

supporting-lining therefor, composed of plates spaced apart and secured together by stay-bolts, and comprising side walls provided with a plurality of oppositely-arranged upward extensions, a centrally-arranged cross-wall, and an end wall, a similarly-constructed arched lining at the rear of the boiler, water-feed pipes connecting the supporting-lining and the arched lining with a source of water-supply, and with each other, and with the boiler, steam-pipes connecting the supporting-lining and the arched lining with the boiler, and a water-column on the supporting-lining.

4. The combination of a steam-boiler, a supporting-lining therefor, composed of plates spaced apart and secured together, and comprising side walls, a cross-wall and an end wall, a similarly-constructed arched lining at the rear of the boiler, water connections between a source of water-supply, the arched lining and the supporting-lining, and between the supporting-lining and the boiler, steam connections between the arched lin-

ing and the supporting-lining, and the boiler, and a water-column on the supporting-lining. 25

5. The combination of a boiler, a hollow front support therefor, hollow side supports therefor communicating with the front support, a hollow arch at the rear of the boiler, water connections between a source of supply, the side supports, the hollow arch, and the boiler, steam connections between the side supports, the hollow arch and the boiler, and a water-column on the front of the side support. 30 35

6. The combination of a boiler, a hollow front support therefor, hollow side supports therefor, and communicating with the front support, water connections between a source of supply, the side supports and the boiler, steam connections between the side supports and the boiler, and a water-column on one of the hollow side supports. 40

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Witnesses:

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