

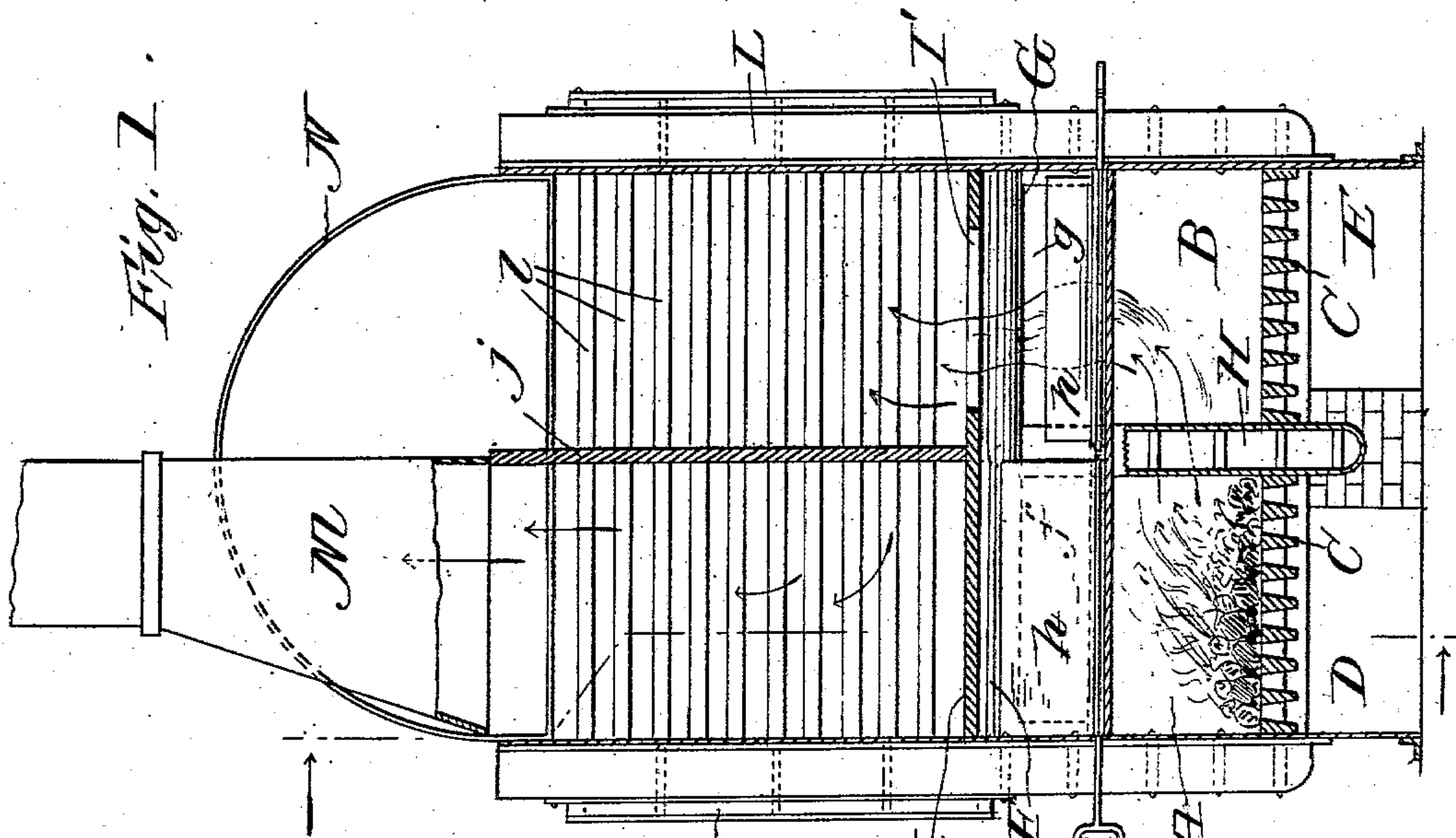
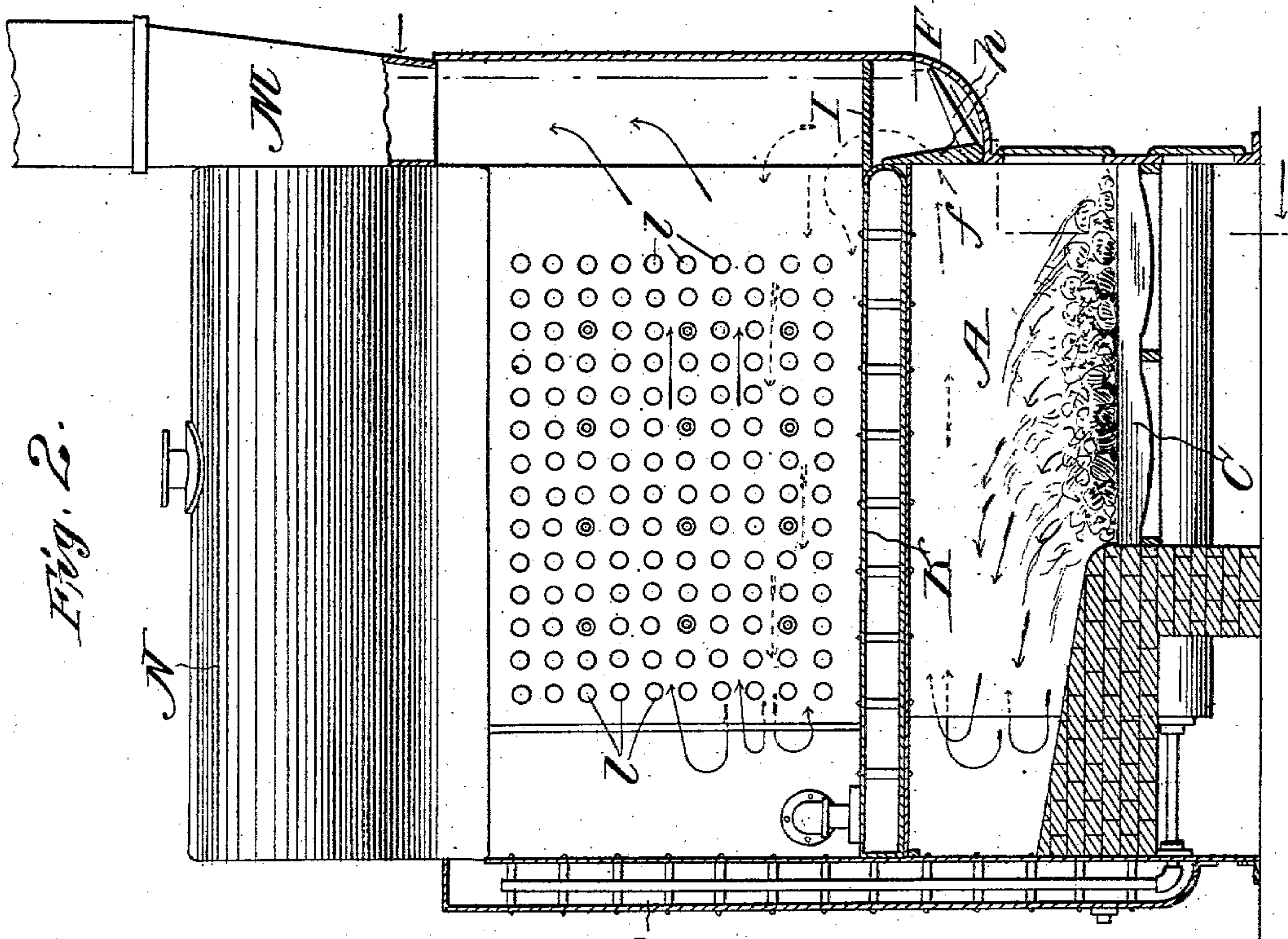
No. 753,360.

PATENTED MAR. 1, 1904.

E. CHAQUETTE.
SMOKELESS BOILER.

APPLICATION FILED JUNE 4, 1903.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

EPHRAIEM CHAQUETTE, OF NEW ROCHELLE, NEW YORK.

SMOKELESS BOILER.

SPECIFICATION forming part of Letters Patent No. 753,360, dated March 1, 1904.

Application filed June 4, 1903. Serial No. 160,010. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIEM CHAQUETTE, a citizen of the United States, and a resident of New Rochelle, Westchester county, State of New York, have invented certain new and useful Improvements in Smokeless Boilers, of which the following is a specification.

The object of my invention is to provide a boiler which by reason of a very large heating-surface in proportion to its size shall be very powerful as a steam-producer and which also by reason of its construction consumes practically all the smoke generated in the furnaces, letting little, if any, visible products of combustion escape. To this end I construct my improved boiler with two fire-pots so arranged that the smoke from each passes over the fire contained in the other, thus completing the combustion of the fuel, and I arrange the water tubes and chambers over the two fire-pots or furnaces in such a way that the heated air arising from both the furnaces mingles at the entrance to the boiler-section and after passing under and through said section escapes by a common flue. In my improved boiler the two fire-pots are intended to be used alternately in the sense that after the furnace is once started the fresh fire of one fire-pot passes over the old fire in the other fire-pot until the old fire needs freshening, when the conditions are reversed.

As the exterior of the furnace will be readily understood from the description of the interior, I have shown in the accompanying drawings only sectional views to illustrate the path of the heat, smoke, and other products of combustion through the furnace.

Figure 1 is a cross-section taken just behind the front wall of the apparatus. Fig. 2 is a longitudinal section.

Same letters indicate similar parts in the different drawings.

A B are two fire-pots arranged side by side and extending practically the full length of the furnace, provided with the usual grates C over the ash-pits D E. The two fire-pots are separated by a water-leg H, which serves as a dividing-wall between them and which extends from the front nearly to the rear. This water-leg communicates with a horizontal

boiler-sections, which serves as a roof for the fire-pots. At the forward end of each furnace is an upturned passage or flue F G, each of which flues communicates with its fire-pot by an opening *f g*, which is closed when required by a damper *h*. These flues are closed at the top by a horizontal partition I, which stretches across the front of the boiler and from which there is communication with the left half of the boiler-section through the opening I', but not with the right half, the boiler-section being divided longitudinally by the partition *j*. The object of this construction is to compel the hot air which enters by either of the flues F G to follow the same course in seeking exit from the furnace.

The boiler-section consists of a hollow floor K, filled with water, and hollow side walls L L, also filled with water and connected with each other by the tubes *l l*, reaching horizontally across the boiler-section and passing through the partition *j*. The rear wall of the boiler-section O is also hollow and filled with water and in communication with the sides and floor.

M is the chimney or flue through which the hot air goes off after passing through the boiler-section from front to rear through the left-hand section, around the partition *j*, which is spaced from the rear wall for that purpose, and thence forward through the right-hand half of the boiler.

N is the dome, through which steam enters by suitable pipes from the side walls L L.

By reason of the fact that the left half of the boiler-section is constantly open to the flues F G, but closed to the flue M, while the other half is open to the flue M while closed to the flues F G, the circulation of air through the boiler-section is always in the same direction, whereas by means of a damper *h* the circulation through the fire-pots may be turned from one direction to the other as occasion requires. It will thus be seen that the products of combustion always travel four times the length of the structure before passing off into the flue M and that the water in the boiler receives heat from an enormous surface—namely, both sides of the water-leg, both surfaces of the floor, the side walls, the end walls,

and the horizontal pipes connecting the side walls.

I claim—

5 A combined boiler and furnace comprising two fire-pots arranged side by side, a water-leg serving as the dividing-wall between said fire-pots and spaced from the rear wall of the furnace so as to afford communication between the fire-pots, a boiler-section communicating
10 with the water - leg and forming the roof of the fire-pots, water - tubes located above said section, a longitudinal partition extending from the front wall midway of the water-tubes

to near the rear wall serving to divide said boiler - section into two passage-ways commu- 15
nicating at the rear, a smoke-exit leading from the front of one of said passage-ways and flues connecting the front of the other passage-way with the front of both of said fire-pots, and dampers in said flues by which communication 20
is established with either of said fire-pots alternately as required.

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