

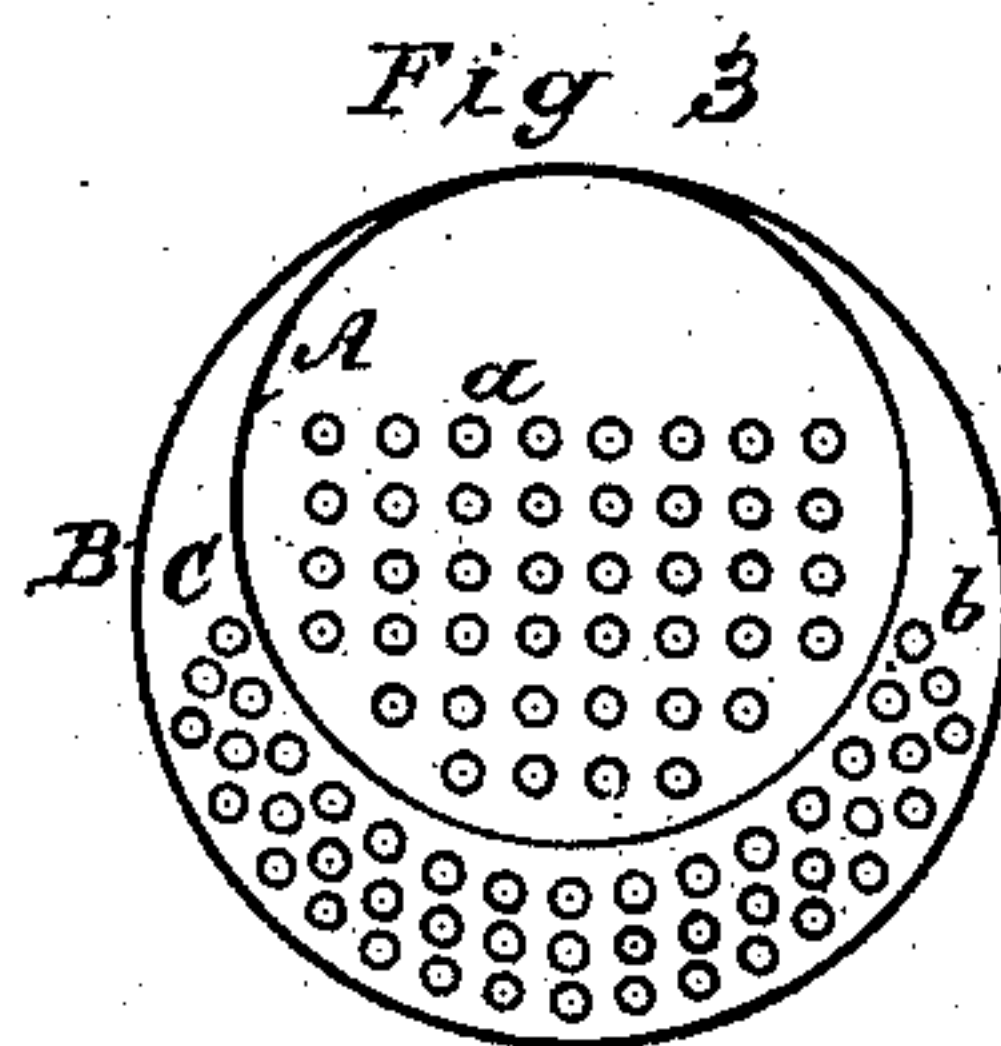
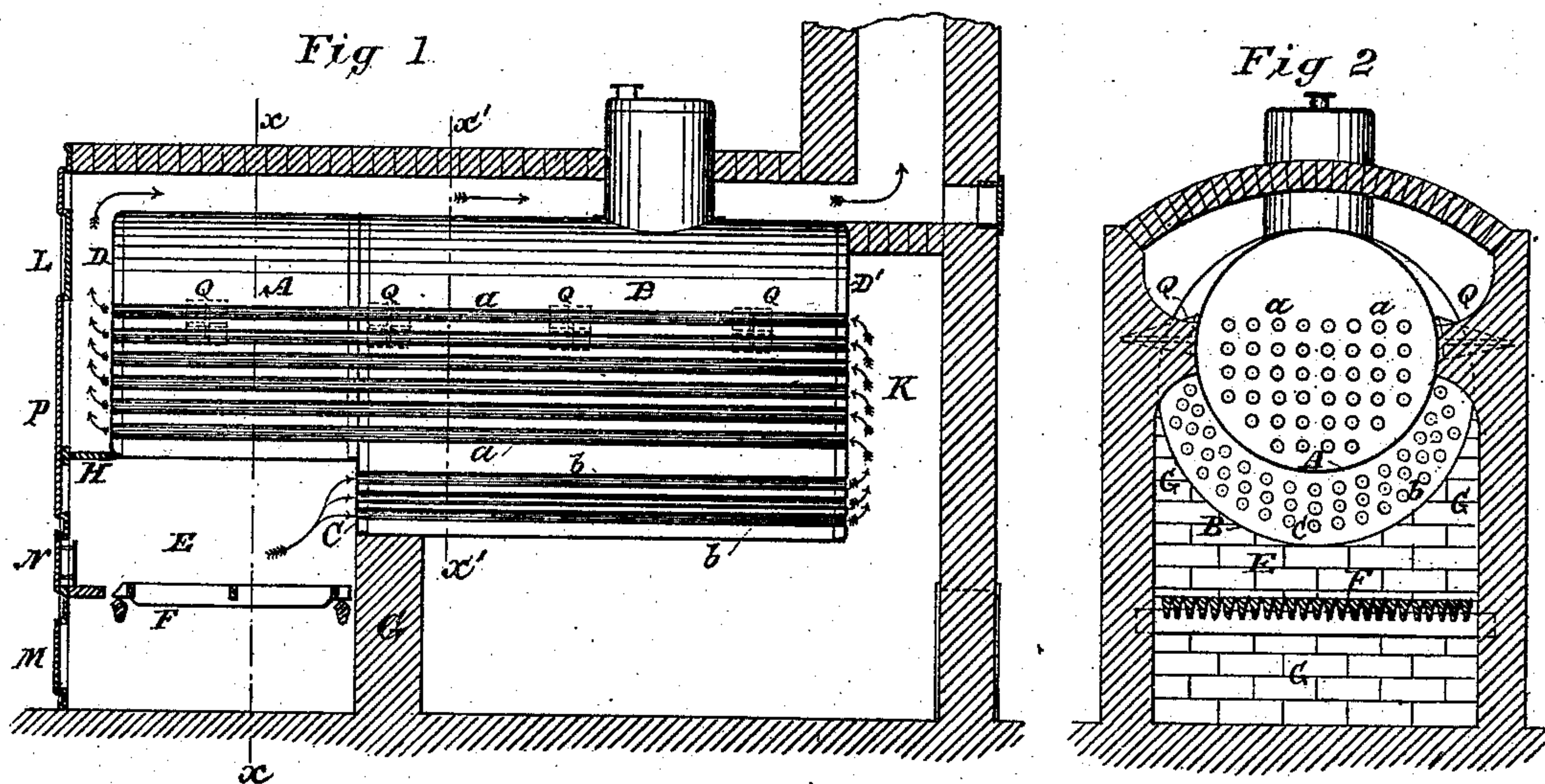
(No Model.)

W. D. ADAMS.

STEAM BOILER.

No. 293,697.

Patented Feb. 19, 1884.



Witnesses
Geo. W. Adams
Geo. W. Adams

Inventor
William D. Adams
by his Attorneys
Brown & Brown

UNITED STATES PATENT OFFICE.

WILLIAM D. ADAMS, OF BROOKLYN, NEW YORK, ASSIGNOR TO HENRY VOGT, OF SAME PLACE.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 293,697, dated February 19, 1884.

Application filed June 29, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. ADAMS, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Steam-Boilers, of which the following is a specification.

The invention consists in the combination, with a boiler the shell of which is composed of two cylindric sections of different diameter and a crescent-shaped plate uniting the said sections, the smaller section being arranged forward of the larger section, and the upper sides of the two sections being in line, of long tubes extending through both said sections, shorter tubes extending from the crescent-shaped plate rearward through the larger section, a furnace below the smaller section and forward of the larger section, and a bridge-wall at the front end of said larger section, extending upward to the under side thereof, whereby the heated products of combustion are caused to pass directly from the furnace through said shorter tubes, as more particularly hereinafter described.

In the accompanying drawings, Figure 1 is a longitudinal section through the center of the boiler fire-chamber and brick-work setting. Fig. 2 is a vertical transverse section through *xx* of the same, and Fig. 3 is a vertical transverse section through the shell of the boiler on the line *x'x'*.

Similar letters of reference designate corresponding parts in the several figures.

A B indicate the shell of a boiler constructed upon my improved plan, composed of the two cylindrical sections A and B, of different diameter, arranged opposite but eccentric to each other, the front section, A, of the smaller diameter, being arranged so that its upper part is on line with the upper part of the rear section, B, of larger diameter. The two sections are open to each other, and are united together by the crescent-shaped plate or tube-sheet C, which closes that part of the section B below and at the sides of the section A. The front and rear ends or heads of the shell are formed by tube-sheets D and D'.

E represents the furnace or fire-chamber, provided with the usual grate-bars, F, and bridge-wall G, the said wall being flush or near the plate C, and the fire-chamber being under the front smaller section of the wall and forward of the plate C.

H is a division-plate separating the fire-chamber from the return-flue.

a a are a series of tubes extending entirely through both sections A and B, and secured in the heads D D'.

b b are a series of tubes extending through the section B, and secured in the head D' and crescent-shaped tube-sheet C.

K is an uptake to permit the products of combustion to pass from the tubes *b b* to the return-tubes *a a*.

L is the front casing of the boiler, and provided with the usual ash-pit door, M, furnace-door N, and the door P, which may be opened for cleaning the boiler-tubes *a a* and *b b*.

Q represents bearers secured to the boiler, for supporting the latter on the side walls.

The bridge-wall G extends upward to the under side of the larger shell-section B, and hence all the products of combustion are caused to pass from the furnace directly through the tubes *b*.

In operation, the flame and heated gases will first act on the exposed parts of the crescent-shaped plate C and the cylindrical section A, which is raised sufficiently high above the grate-bars to allow a proper combustion of the fuel, thence directly through the series of tubes *b b* to the rear uptake, K, returning through the tubes *a a* to the upper flue leading to the stack.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, with a boiler the shell of which is composed of the two cylindric sections A B of different diameter, and having their upper sides in line, and a crescent-shaped plate, C, uniting said sections, of long tubes *a*, extending through both said sections, shorter tubes *b*, extending through the section B, a furnace, E, below the section A and forward of the section B, and a bridge-wall, G, at the front end of said section B, extending upward to the under side thereof, whereby the heated products of combustion are caused to pass from said furnace directly through the tubes *b*, substantially as and for the purpose herein described.

WILLIAM D. ADAMS.

Witnesses:

FREDK. HAYNES,
ED. L. MORAN.