

(No Model.)

P. FITZGIBBONS.

STEAM BOILER.

No. 290,762.

Patented Dec. 25, 1883.

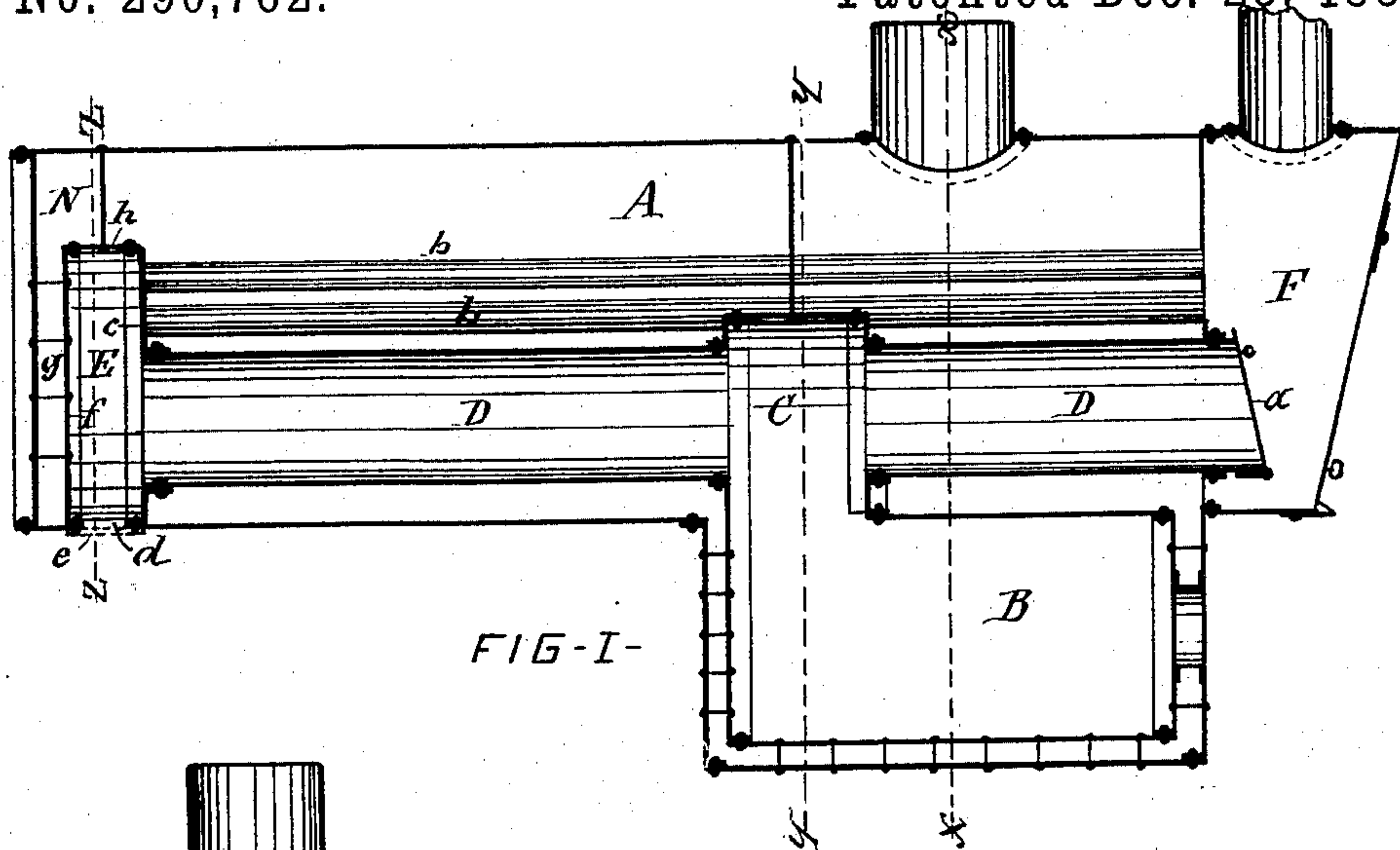


FIG-I-

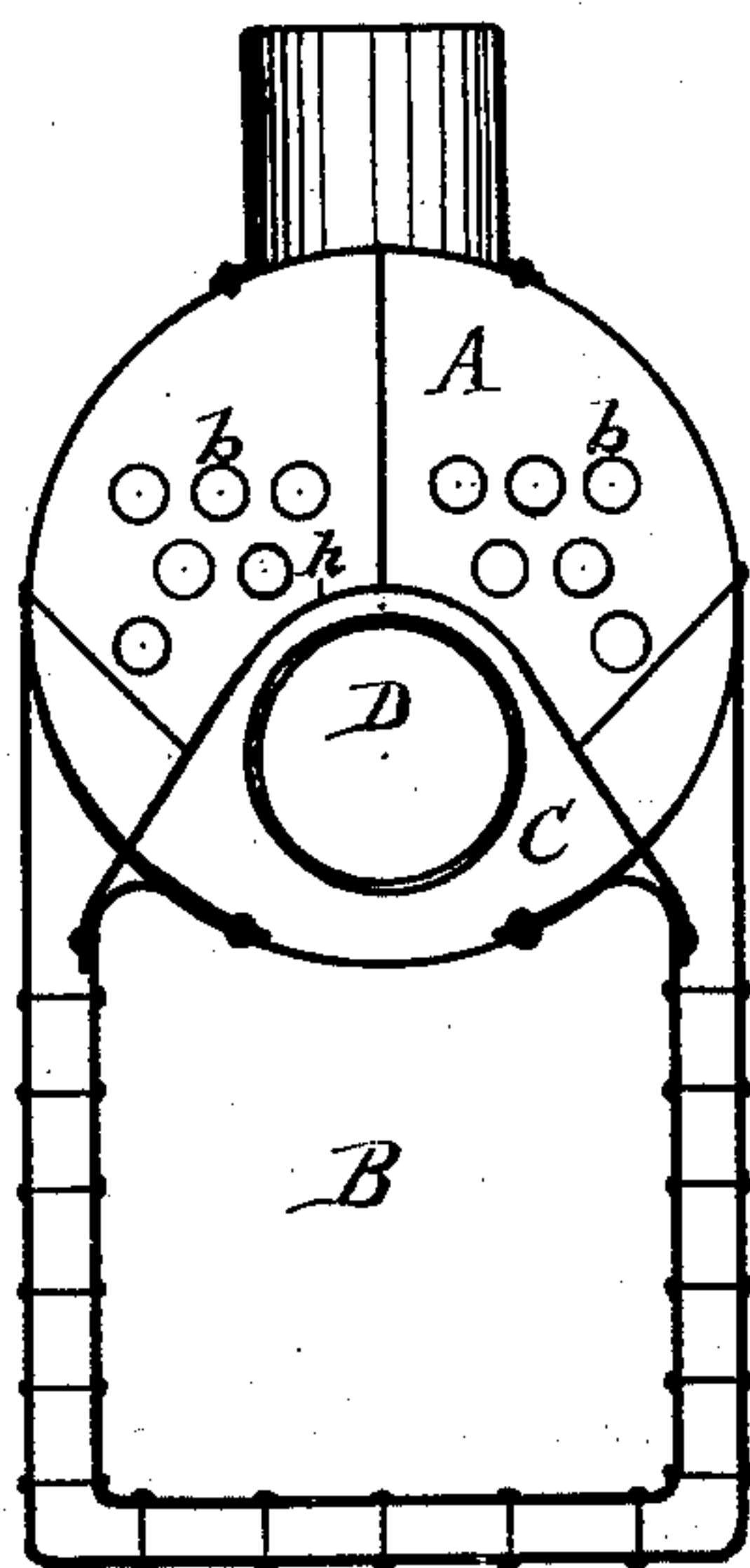


FIG-II-

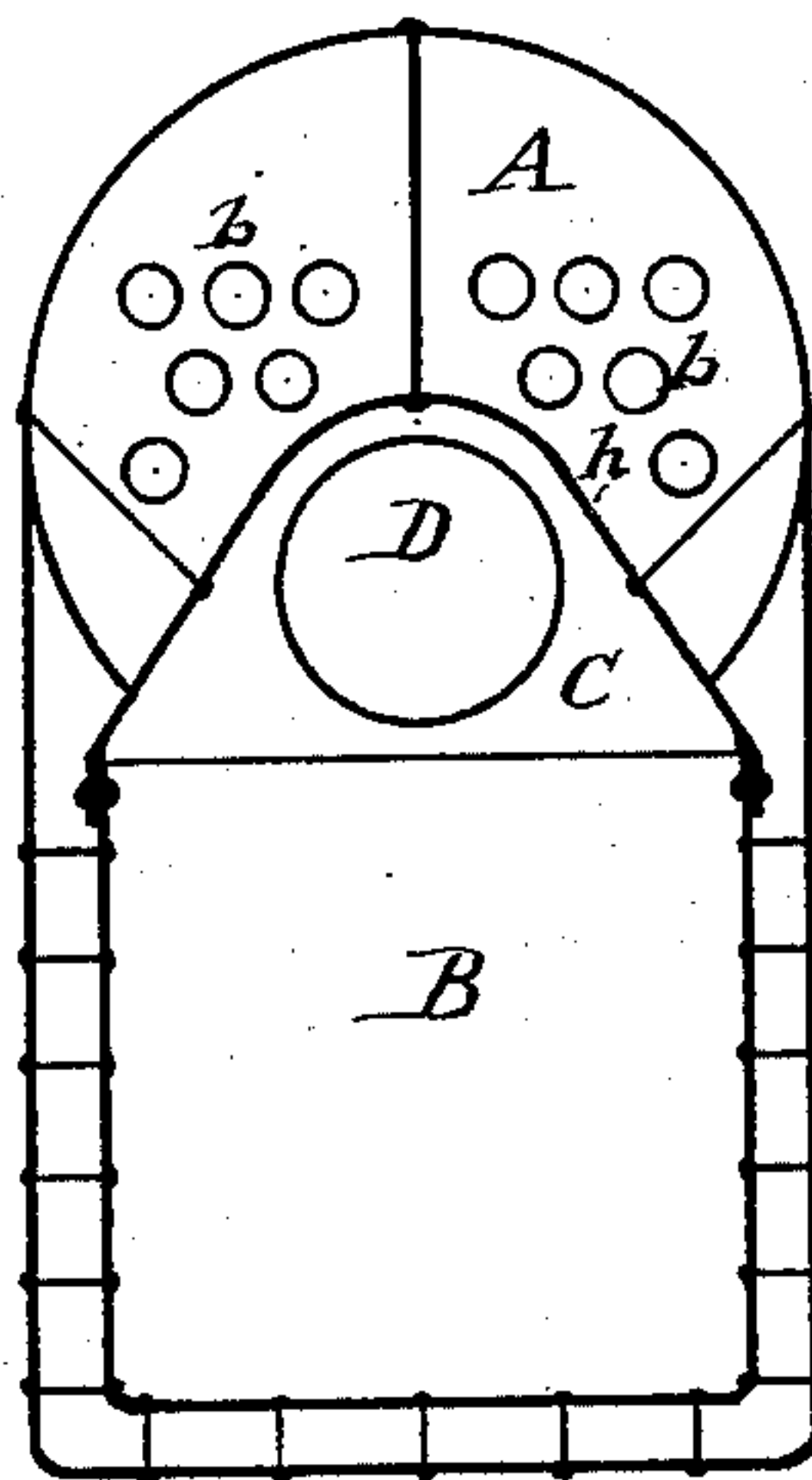


FIG-III-

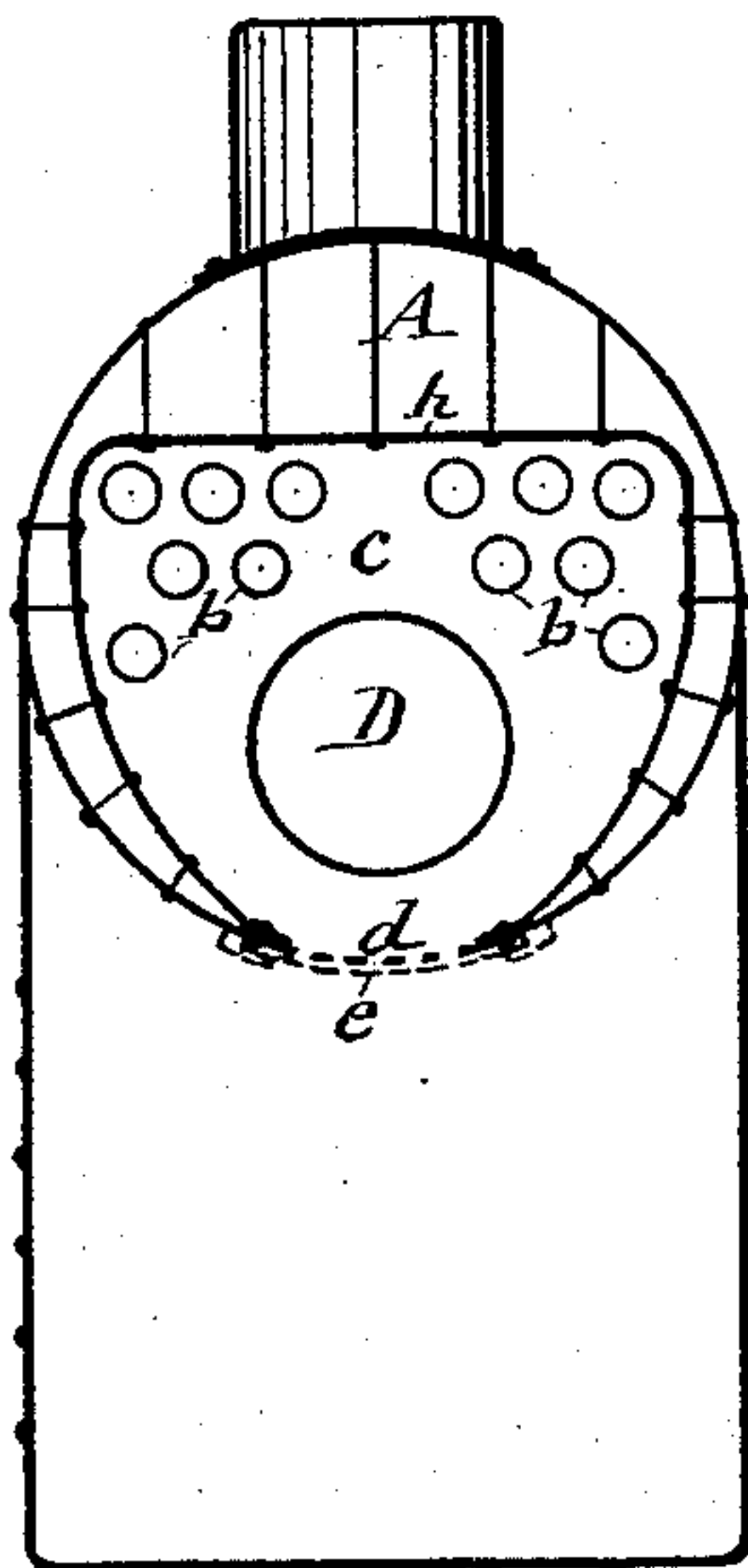


FIG-IV-

WITNESSES:

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INVENTOR:

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per Atty. Laass & May
attys

UNITED STATES PATENT OFFICE.

PATRICK FITZGIBBONS, OF OSWEGO, NEW YORK.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 290,762, dated December 25, 1883.

Application filed October 9, 1883. (No model.)

To all whom it may concern:

Be it known that I, PATRICK FITZGIBBONS, of Oswego, in the county of Oswego, in the State of New York, have invented new and useful
5 Improvements in Steam-Boilers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

The object of this invention is to construct
10 in the simplest, safest, and most effective form a steam-boiler with a water-jacketed combustion-chamber having a man-hole to afford ready access to the interior thereof for repairing, removing, or cleaning the same; and
15 the invention consists, essentially, in a return-flue boiler having a rear end extension, with a man-hole in the bottom thereof, a water-jacketed combustion-chamber constructed of the rear flue-sheet and inner water-back
20 sheet, having their edges turned or flanged toward the combustion-chamber, and their bottom flange riveted directly to the boiler-shell extension at opposite edges of the man-hole, and the crown-sheet extended to and terminating
25 at the said man-hole, and riveted to the flanges of the aforesaid flue-sheet and water-back sheet, and directly to the bottom portion of the boiler-shell extension, said construction and combination of parts not only producing
30 but a single calking-seam around the edges of the man-hole, but also dispensing with the usual frame heretofore interposed between the edges of the sheets to be joined around the man-hole, all as hereinafter more fully described, and specifically set forth in the claim.

In the annexed drawings, Figure I is a longitudinal section of a steam-boiler embodying my improvements; and Figs. II, III, and IV are vertical transverse sections, respectively,
40 on lines *x x*, *y y*, and *z z*, Fig. I.

Similar letters of reference indicate corresponding parts.

A denotes the main boiler-shell, of cylindrical form, and B is the fire-box, built under
45 the front end of the boiler, with a water-space around its sides and ends, in the usual manner. The rear end of the fire-box I construct with an elevated centrally-arched portion, C, which projects into the boiler-shell, and the
50 center of the arched portion is tapped by the main fire-flue D, which is extended to oppo-

site ends of the boiler, and communicates with the rear combustion-chamber, E, and front smoke-box, F, at which latter place the end of said main flue is provided with a damper, *a*,
55 as shown in Fig. I of the drawings.

b b are the ordinary return-flues, extended from the combustion-chamber direct to the front smoke-box in the usual manner.

The combustion-chamber E, I form in an extension, N, of the rear end of the boiler-shell
60 beyond the rear flue-sheet, which extension I provide at its bottom with an opening or man-hole, *d*; and with a removable cover, *e*, over said man-hole, as indicated by dotted lines in
65 Figs. I and IV of the drawings. Said combustion-chamber is formed of the rear flue-sheet, *c*, and the inner sheet, *f*, of the water-back *g*, which sheets are of a smaller diameter than the boiler-shell, so as to leave a space
70 around the edges of the former. The top edges of said sheets are below the water-line of the boiler, so as to protect the crown-sheet *h*, connected to said edges. All of the edges of the two sheets *c* and *f* are turned or flanged
75 toward the combustion-chamber, and are thus easy of access for riveting and calking, and the bottom flanges of said sheets are riveted directly to the bottom portion of the boiler-shell extension at opposite edges of the man-
80 hole *d*. The crown-sheet *h* is extended across the top and down the side edges of the sheets *c* and *f* and riveted to the flanges thereof. The ends of the sheet *h* terminate at the edges of the man-hole *d*, and are riveted directly to the
85 bottom portion of the boiler-sheet extension N. Since the tendency of the heat is toward the upper part of the combustion-chamber, the water-spaces at the sides of the combustion-chamber admit of a gradual diminution
90 in width toward the man-hole *d*, where the combustion-chamber is joined directly to the boiler-shell extension, as shown.

I do not claim, broadly, the junction of the sides of the combustion-chamber directly with
95 the bottom portion of the boiler-shell, as I am aware the same is not new. The feature of novelty in this case lies in the combination, with the boiler-shell extension provided with a man-hole, and the combustion-chamber shell
100 *h*, joined directly to the boiler-shell, as shown, of the rear flue-sheet and inner water-back

sheet flanged toward the combustion-chamber, and having the shell *h* secured to the exterior of the flanges of the aforesaid sheets, and the bottom portion of said flanges seated directly upon and riveted to the bottom portion of the boiler-shell at opposite sides of the man-hole, said construction and combination of parts constituting essential improvements on prior devices in several respects, viz: first, it renders the joints between the shell *h* and sheets *c* and *f* easily accessible from the interior of the combustion-chamber, and thus facilitates the riveting and calking of the same; secondly, it dispenses with the extra frame heretofore employed around the man-hole; and, thirdly, it forms a single and easily-accessible calking-seam around the man-hole. The said man-hole allows a person to enter the combustion-chamber from the bottom thereof sufficiently to permit said person to set the stays and flues and to readily clean the flues and combustion-chamber, or make any repairs that may be required.

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

In a return-flue boiler having a rear end extension with a man-hole in the bottom thereof, a water-jacketed combustion-chamber constructed of the rear flue-sheet and inner water-back sheet, having their edges flanged toward the combustion-chamber, and their bottom flange riveted directly to the boiler-shell extension at opposite edges of the man-hole, and the crown-sheet extended to and terminating at the said man-hole, and riveted to the exterior of the flanges of the aforesaid flue-sheet and water-back sheet, and directly to the bottom portion of the boiler-shell extension, the whole constructed and combined substantially as described and shown.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 2d day of October, 1883.

PATRICK FITZGIBBONS. [L. S.]

Witnesses:

FREDERICK H. GIBBS,
W. C. RAYMOND.