

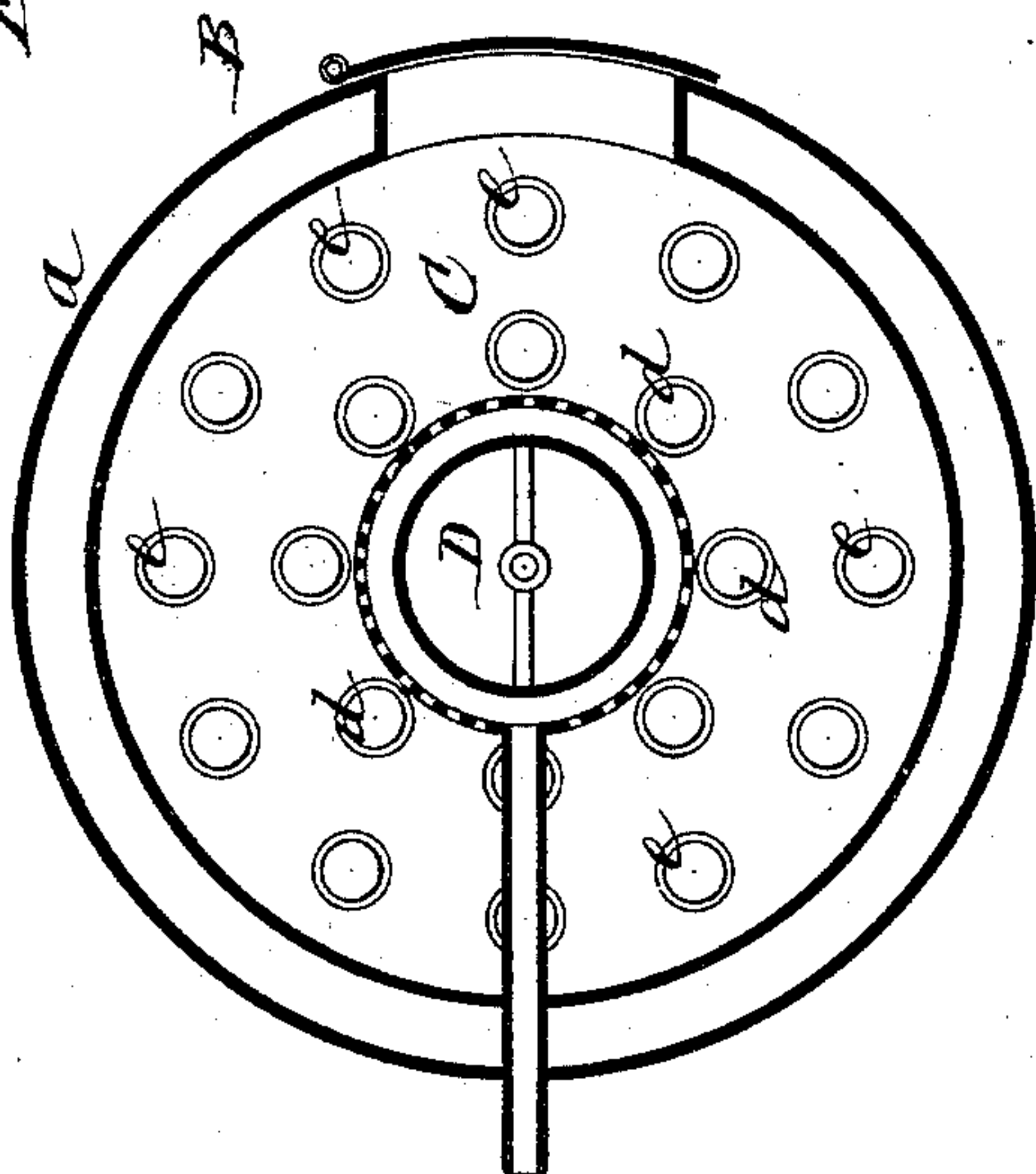
(Model.)

G. W. HALL.  
Steam Boiler.

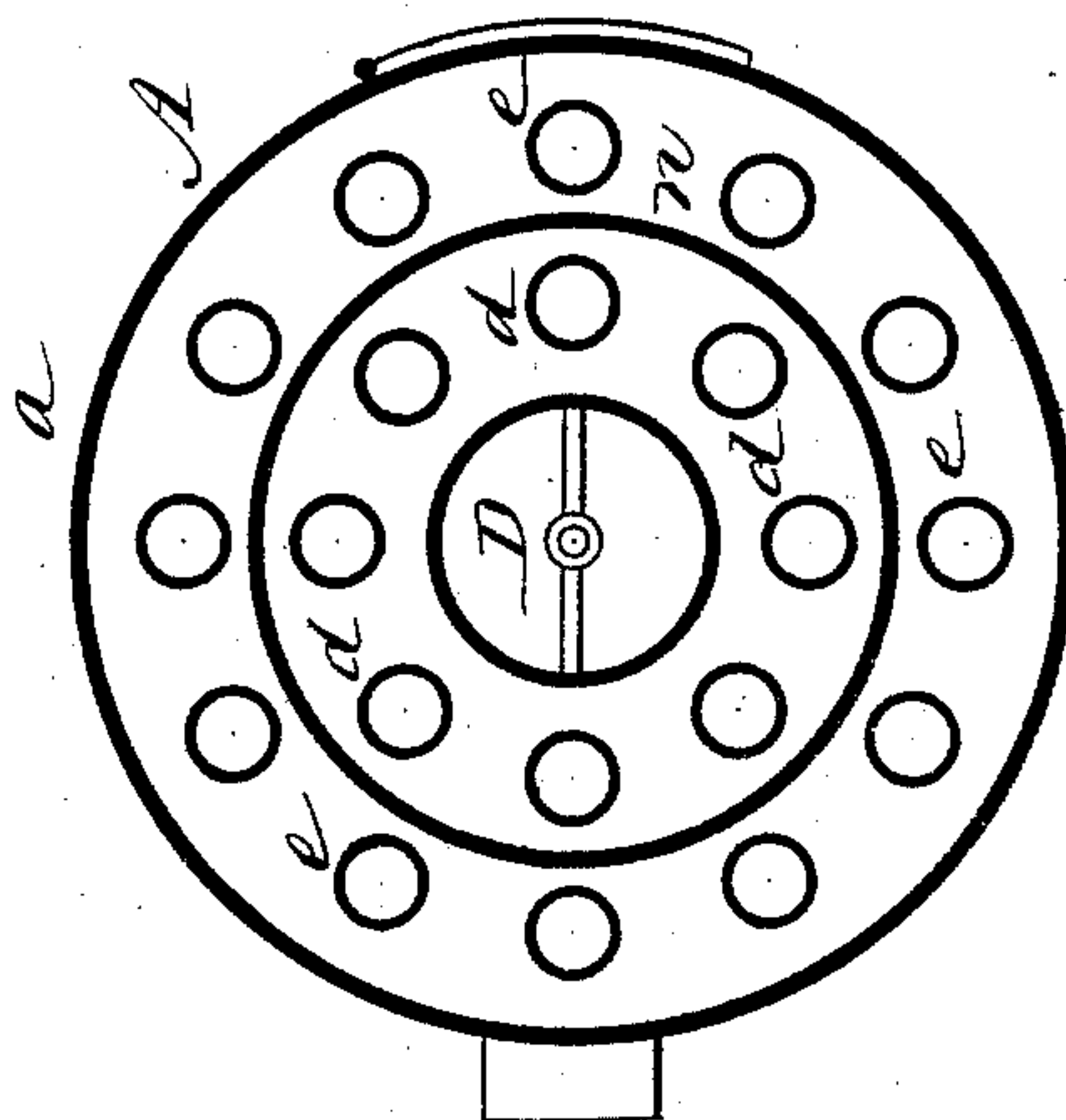
No. 232,024.

Patented Sept. 7, 1880.

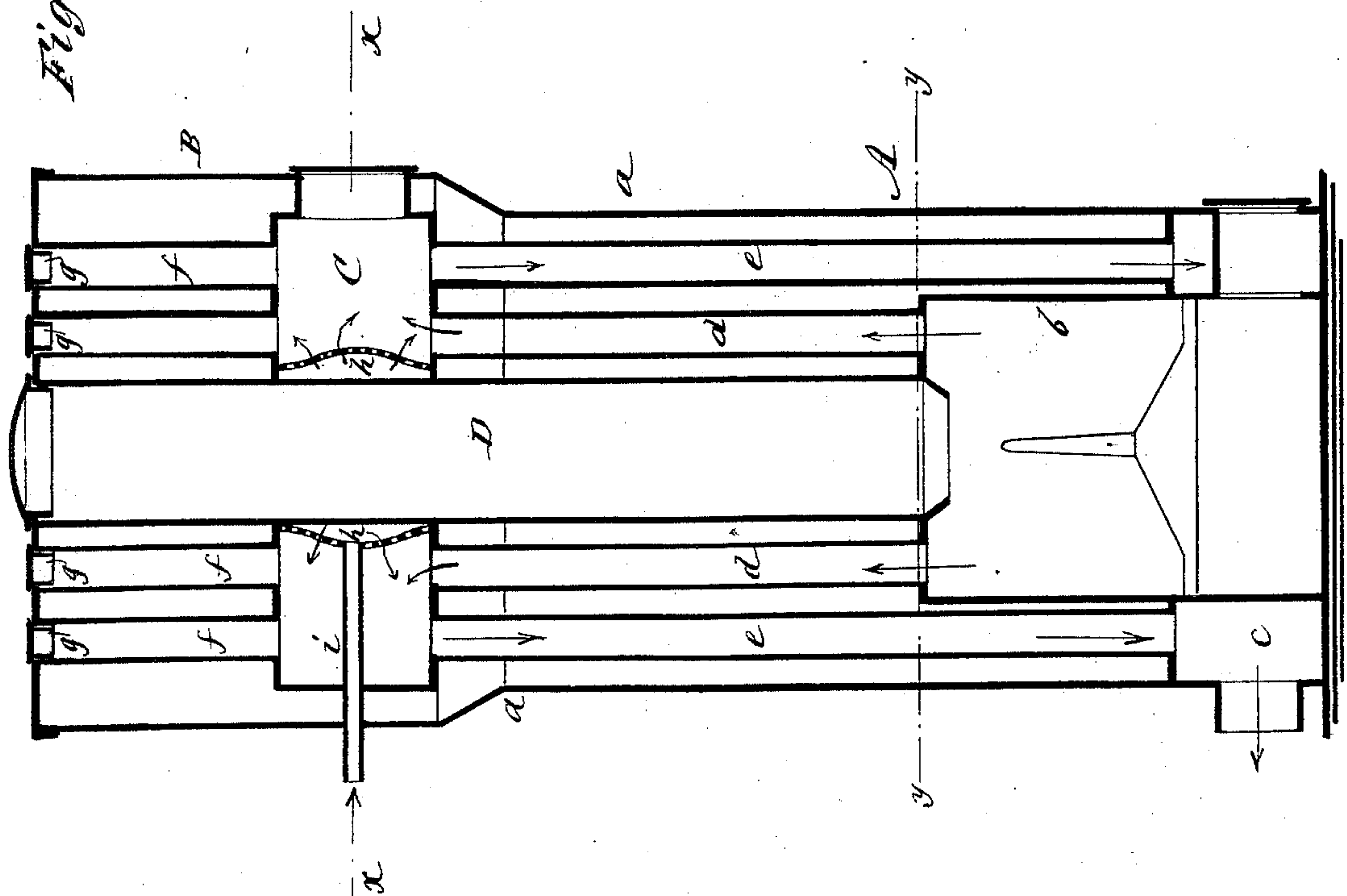
*Fig. 2*



*Fig. 3*



*Fig. 1*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GORDON W. HALL, OF HAVANA, NEW YORK, ASSIGNOR TO HIMSELF AND  
ALBERT O. WHITTEMORE, OF SAME PLACE.

## STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 232,024, dated September 7, 1880.

Application filed July 1, 1880. (Model.)

*To all whom it may concern:*

Be it known that I, GORDON W. HALL, of Havana, in the county of Schuyler and State of New York, have invented new and useful  
5 Improvements in Steam-Boilers, of which the following is a specification.

My improvements relate to steam-boilers having central magazines or reservoirs for fuel, and have for their object to insure more perfect combustion and to superheat the steam.  
10

My invention consists in a vertical boiler provided with a steam-dome containing tubes placed above a combustion-chamber at the upper end of the boiler, the tubes of the steam-dome being fitted with removable caps at the  
15 upper end. The caps give access to the boiler-tubes as required, and also cause return of the draft to the smoke-box around the ash-pit.

In the accompanying drawings, forming part  
20 of this specification, Figure 1 is a vertical section of a boiler embodying my improvements. Fig. 2 is a sectional plan on line *x x* of Fig. 1, and Fig. 3 is a similar view on line *y y*.

Similar letters of reference indicate corresponding parts.  
25

A is the boiler, and B the steam-dome, formed by the shell *a*. In the lower end of the boiler is an inner shell, *b*, forming the fire-box, around which is an annular plate above the  
30 smoke-box *c*. In the upper part of the boiler is a cylinder forming the combustion-chamber C, which connects by tubes *d* with the fire-box, and by tubes *e* with the smoke-box *c*. These tubes may be in one or more ranges, as desired.  
35

D is the central reservoir or magazine extending from the top of dome B to the fire-box.

In the steam-dome B are tubes *f*, which are  
40 secured to the top of cylinder C, and to the

top plate of the steam-dome. These tubes *f* correspond in number with the tubes *d e* of the boiler, and are placed directly above so as to register with the same. In their upper ends are fitted removable caps *g*, which close  
45 the ends tightly, but may be removed to give access to the tubes.

In chamber C around the reservoir D is fixed a perforated jacket, *h*, from which a tube, *i*, passes through the side of the dome B for  
50 allowing inlet of air.

By this construction the products of combustion pass to the chamber C and tubes *f* from the fire-box, where the combustion is quickened by the air supplied by tube *i*. The  
55 steam in dome B is superheated by contact with the tubes *f* and sides of chamber C. The tubes *f* being closed at the top, the products of combustion are caused to return downward by tubes *e* to the smoke-box *c*. This boiler  
60 will generate steam rapidly and supply the steam dry. The flue-tubes *d e* are readily accessible for cleaning, and the chamber C is accessible by a door provided at the side, as  
65 shown.

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

In vertical boilers provided with flue-tubes *d e*, and combustion-chamber C, provided with  
70 perforated jacket *h*, and the air-pipe *i*, the dome B, provided with tubes *f*, connecting with chamber C, and closed by removable caps at their upper ends, substantially as and for the purposes set forth.

GORDON W. HALL.

Witnesses:

A. O. WHITTEMORE,  
ISAAC M. MILLER.