

W. D. Ballard,

Steam-Boiler Furnace.

N^o 25,713.

Patented Oct. 11, 1859.

Fig. 1.

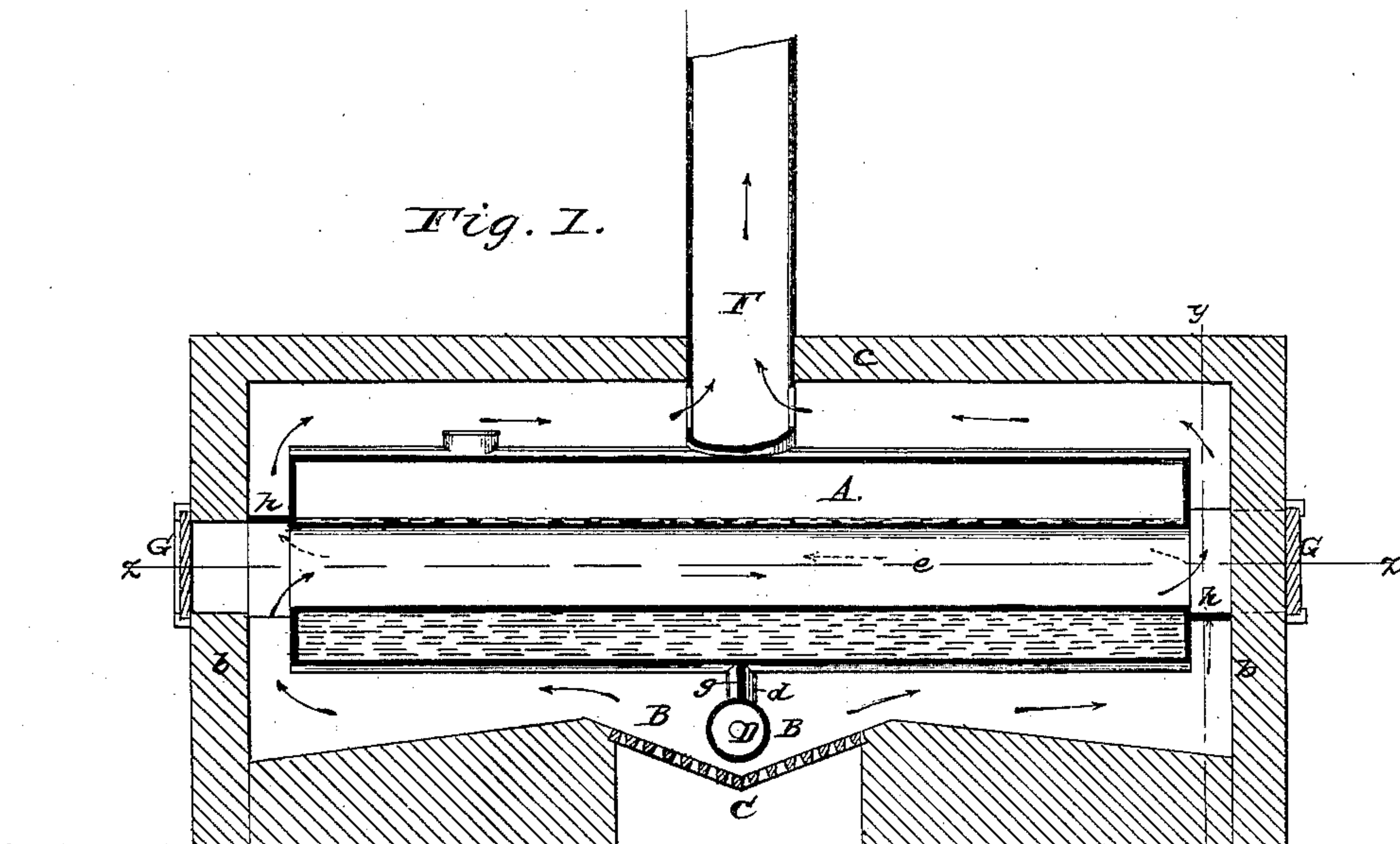


Fig. 3.

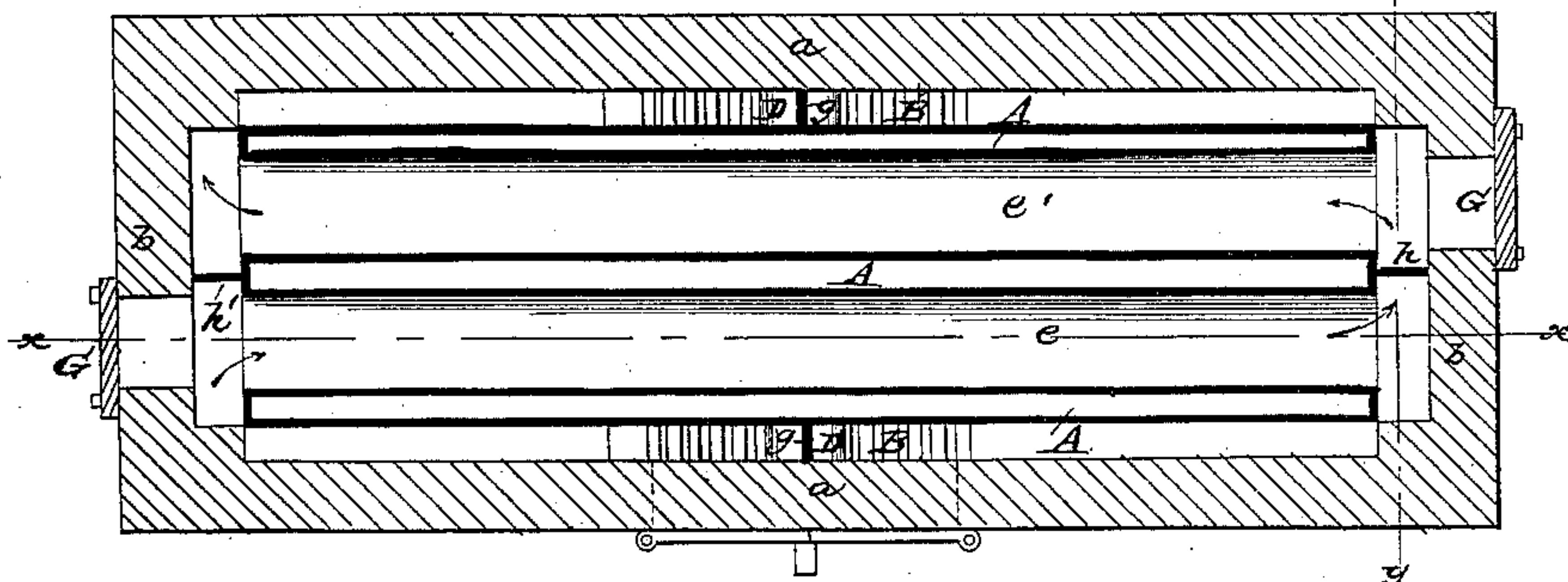
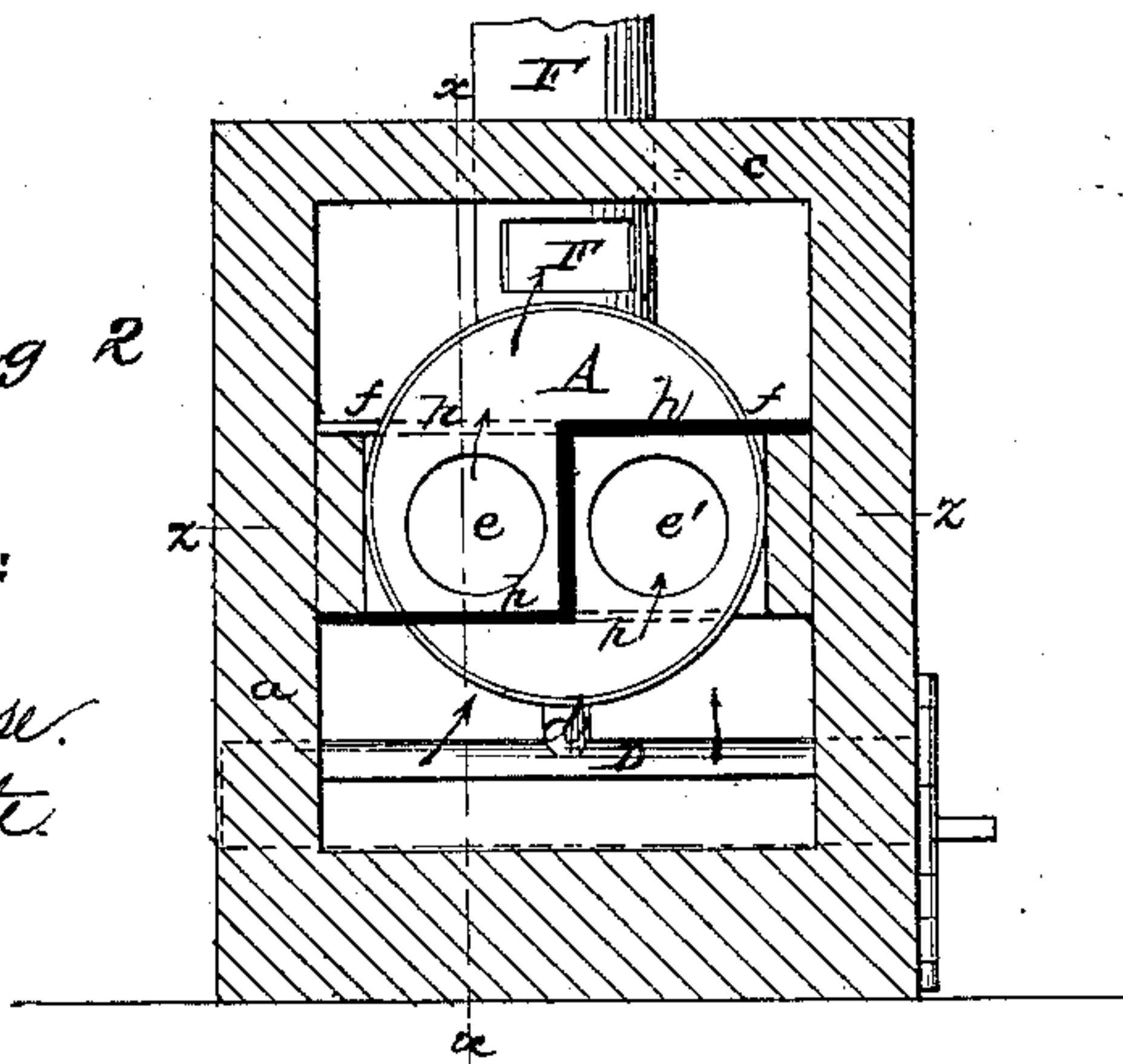


Fig. 2



Witnesses:
Samuel S. House.
Presley G. Wilhite.

Inventor.
W. D. Ballard.

UNITED STATES PATENT OFFICE.

W. D. BALLARD, OF KANSAS CITY, MISSOURI.

STEAM-BOILER FURNACE.

Specification of Letters Patent No. 25,713, dated October 11, 1859.

To all whom it may concern:

Be it known that I, W. D. BALLARD, of Kansas City, in the county of Jackson and State of Missouri, have invented a new and
5 useful Improvement in Steam-Boiler Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this
10 specification, in which—

Figure 1 is a central vertical longitudinal section of a boiler and furnace taken in the plane indicated by the line $x x$ of Figs. 2 and 3. Fig. 2 is a transverse vertical section of the same in the plane indicated by the line $y y$ of Figs. 1 and 3. Fig. 3 is a
15 horizontal section of the same in the plane indicated by the line $z z$ of Figs. 1 and 2.

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

This invention consists in a novel arrangement of a fire place, setting and external flues in combination with what is known as a two flue boiler whereby the several parts
25 of the heating surface are exposed in a very effective manner to the action of the fire and inflamed and heated gaseous products of combustion.

To enable others to make and use my invention I will proceed to describe its construction and operation.

A is the boiler supported at its ends, and at such other points in its length, as may be desirable, on piers and completely enclosed by four walls $a a b b$, and a superincumbent arch or roof c , some distance above the top thereof. B, is the fire-place, and C, the ash pit, arranged under the middle of the length of the boiler, and having doors
40 in one of the side walls $a a$.

D is a mud pipe arranged below and transversely to the boiler over the middle of the grate and connected with the bottom of the boiler by a pipe d .

45 f, f are horizontal partitions of masonry extending the whole length of the boiler, between the sides of the boiler and the side walls $a a$, at a level above the tops of the two flues e, e .

g is a partition extending from the mud pipe upward all around the boiler as high as the partitions f, f , dividing the space at the sides of the boiler, below the partitions f, f , into two equal parts. h, h , are two similar partitions, one at each end of the boiler extending entirely across the spaces between the ends of the boiler and the end walls b, b , each of said partitions extending horizontally from one of the corner piers below one of the flues e, e' , to a point opposite the center of the boiler from thence upward between the two flues to a point above them and from thence horizontally to the opposite corner pier, but the two partitions being arranged each in a manner the reverse of the other, that is to say, one passing below the flue, above which the other passes and vice versa.

F is the chimney situated directly over the middle of the boiler and directly over the fire.

G, G', are doors for cleaning the flues e, e' .

The course of the draft is indicated by arrows in the several figures, viz., from the fire, in opposite directions, along the bottom of the boiler and those parts of the sides thereof below the partitions, $f f$, and under the partitions, $h h$, at the ends thereof. The heated gaseous products of combustion on their arrival at the ends of the boiler are caused by the partitions, $h h$, to pass in opposite directions through the boiler flues, e, e' , and so to arrive at the opposite ends above the said partitions, $h h$, whence they escape over the top of the boiler to the chimney.

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

The arrangement of the fire place B, the partitions f, f, g, h, h , of the setting and the chimney F, substantially as herein described, with the two flued boiler.

W. D. BALLARD.

Witnesses:

PRESLEY G. WILHITE,
DANIEL L. SHOUSE.