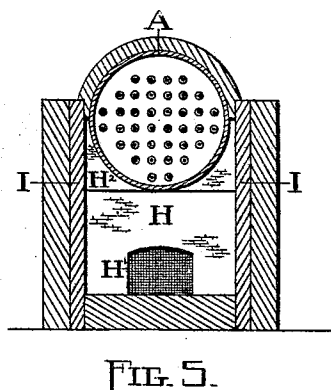
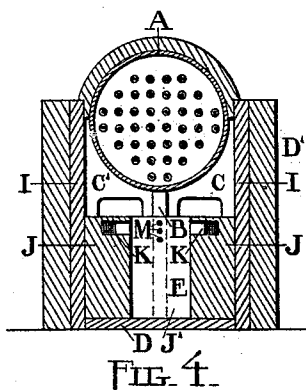
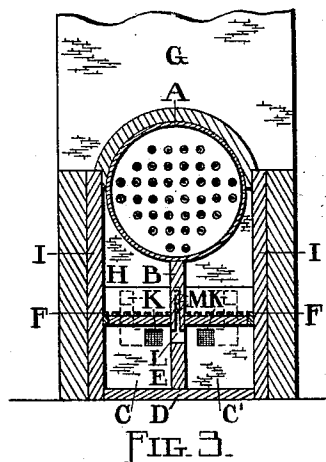
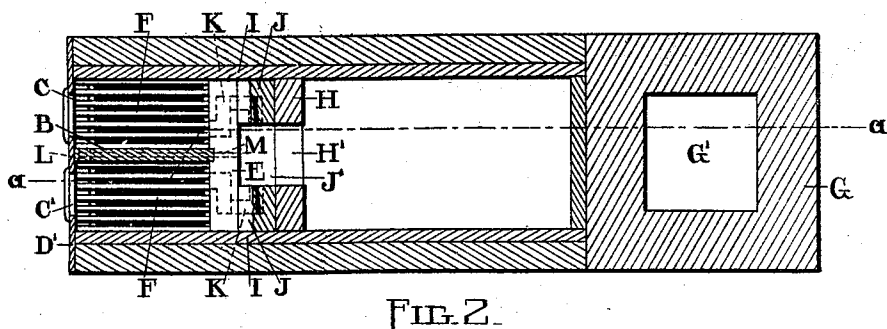
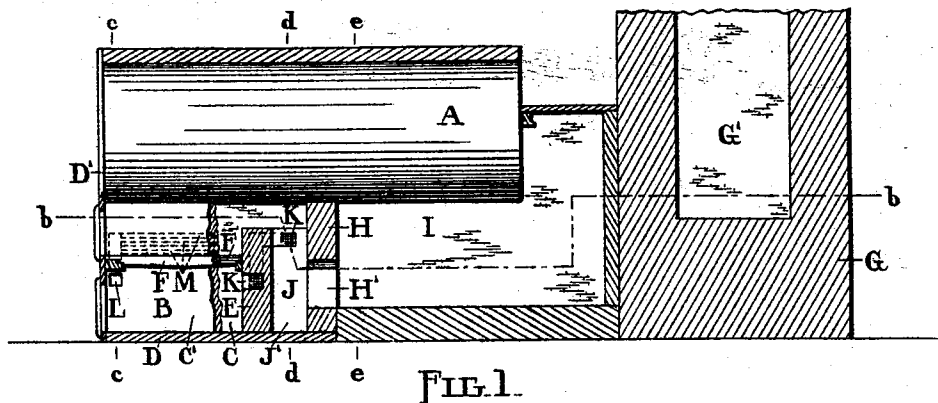


(No Model.)

G. RHODEN.
SMOKE CONSUMER.

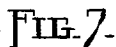
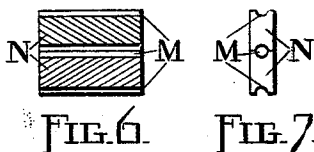
No. 517,238.

Patented Mar. 27, 1894.



WITNESSES:

F. A. Cutter
Ch. Schlandrecht



INVENTOR:

G. Rhoden.
By W. H. Burridge.
Atty.

UNITED STATES PATENT OFFICE.

GEORGE RHODEN, OF CLEVELAND, OHIO.

SMOKE-CONSUMER.

SPECIFICATION forming part of Letters Patent No. 517,238, dated March 27, 1894.

Application filed April 15, 1893. Serial No. 470,454. (No model.)

To all whom it may concern:

Be it known that I, GEORGE RHODEN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Smoke-Consumers, of which the following is a full, clear, and exact description.

My invention consists of a parti-wall, which divides the furnace under a boiler into two chambers, and a wall back of the ordinary bridge-wall, with flues and openings in said walls as hereinafter fully described.

The object of my improvement is to provide a means for consuming and utilizing as fuel the carbonaceous properties and inflammable gases of which smoke is largely composed and rendering said smoke comparatively free from all impurities, when it reaches the outside atmosphere. By actual experiment, I have demonstrated that a positive economy in fuel and a whitesmoke, at the top of the chimney, result from the use of my consumer.

That my invention may be seen and fully understood by others, reference will be had to the following specification and annexed drawings forming a part thereof in which—

Figure 1 is a longitudinal, vertical section on line *a, a*, Fig. 2; Fig. 2, a longitudinal, horizontal section on line *b, b*, Fig. 1; Fig. 3, a transverse, vertical section on line *c, c*, Fig. 1, looking toward the rear; Fig. 4, a transverse, vertical section on line *d, d*, Fig. 1, looking toward the front; Fig. 5, a transverse, vertical section on line *e, e*, Fig. 1, looking toward the front; Fig. 6, a sectional view of two of the bricks used in the construction of the parti-wall, showing the flues therein, and Fig. 7, an end view of the same.

Similar letters of reference designate like parts in the drawings and specification.

Below the front end of the boiler A, Figs. 1, 3, 4 and 5, is a furnace divided, by the parti-wall B, Figs. 1, 2, 3 and 4, into the chambers C and C'. The parti-wall B extends vertically from the bottom of the boiler A to the floor D, of the furnace, and horizontally from the front D', of said furnace, to the bridge-wall E, Figs. 1, 2, 3 and 4. Each of the chambers C and C' is provided with the grate F, Figs. 1, 2 and 3.

Back of the boiler A is the chimney G having the flue G'.

A short distance behind the bridge-wall E is the wall H, Figs. 1, 2, 3 and 5, having the opening H', Figs. 1, 2 and 5. The wall H extends vertically from the floor D to the boiler A and connects the sides I, I of the furnace inclosure. Above the bottom of the boiler A, the wall H may be thinner than below, as indicated at H², Fig. 5.

Against the sides I, I and between the ends of the bridge-wall E and the wall H, but on a level with the top of said bridge-wall, are the connecting-walls J, J, Figs. 1, 2 and 4, forming, with the bridge-wall and the wall H, the flue J' open at the top.

In the bridge-wall E and the connecting-walls J, J are the flues K, K, Figs. 1, 2, 3 and 4, which open, at one end, below the grates F each side of the parti-wall B and, at the other, into the flue J' near the top thereof. The flue L, best shown in Fig. 3, is located in the parti-wall E, near the front, and opens, at the base, into the chambers C, and C'. The upper part of the flue L, is connected with the flue J' by one or more horizontal flues M, Figs. 1, 2, 3 and 4.

Between the grates F and the top of the bridge-wall E, the parti-wall B is constructed of the bricks N, Figs. 6 and 7, having the holes or flues M therein. The bricks N have a groove extending through the center of the upper and under edges thereof and when two of said bricks are brought together, as shown in Figs. 6 and 7, the flue M is formed. It will now be readily seen that air received into the flue L, in the parti-wall B, in its passage through the flues M, will become super-heated before it enters the flue J', while a portion of the hot air below the grates F, enters said flue J' through the flues K, K. Since the wall H is built tight to the boiler, the smoke arising from the fire on the grates F is drawn over the bridge-wall E down into the flue J', by the draft which passes through the opening H', in said wall H. In the flue J' the smoke commingles with the super-heated air from the flues M and K, K and the larger part or all of said smoke is thereby consumed. Any portion of the smoke not destroyed, in the manner above described, finds its way through the ordinary channels to the flue G', of the

chimney G, and passes off. The best results are produced when the fire on one grate F is at a red heat and the other black with fresh coal, since, by alternating in this way, sufficient heat will be eliminated from the bright fire to consume the smoke arising from the fire in the other chamber.

By constructing the parti-wall B, between the grates and the top of the bridge-wall E, of the bricks N a saving of expense results, for said bricks having the flues M therein will not burn out so quickly as they would if solid.

A particular advantage of my smoke consumer lies in the fact that it may be applied to any furnace and boiler with slight cost, when compared with other devices for a similar purpose.

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

In a smoke consumer, a furnace below a boiler divided into two chambers by a parti-wall having flues therein opening, at the front, each side below the grates, and at the rear, into the flue J' near the top, in combination with the wall H having the opening H', and the connecting-walls J, J forming with said wall H and the bridge-wall of the flue J', said connecting-walls and bridge-wall having the flues K, K opening below the grates each side of said parti-wall and through said connecting-walls near the top into said flue J', in the manner substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE RHODEN.

Witnesses:

F. A. CUTTER,

C. H. SCHLAUDECKER.