(No Model.)

J. SCOTT.

COMBUSTION CHAMBER FOR STEAM BOILERS.

No. 270,490. Patented Jan. 9, 1883.

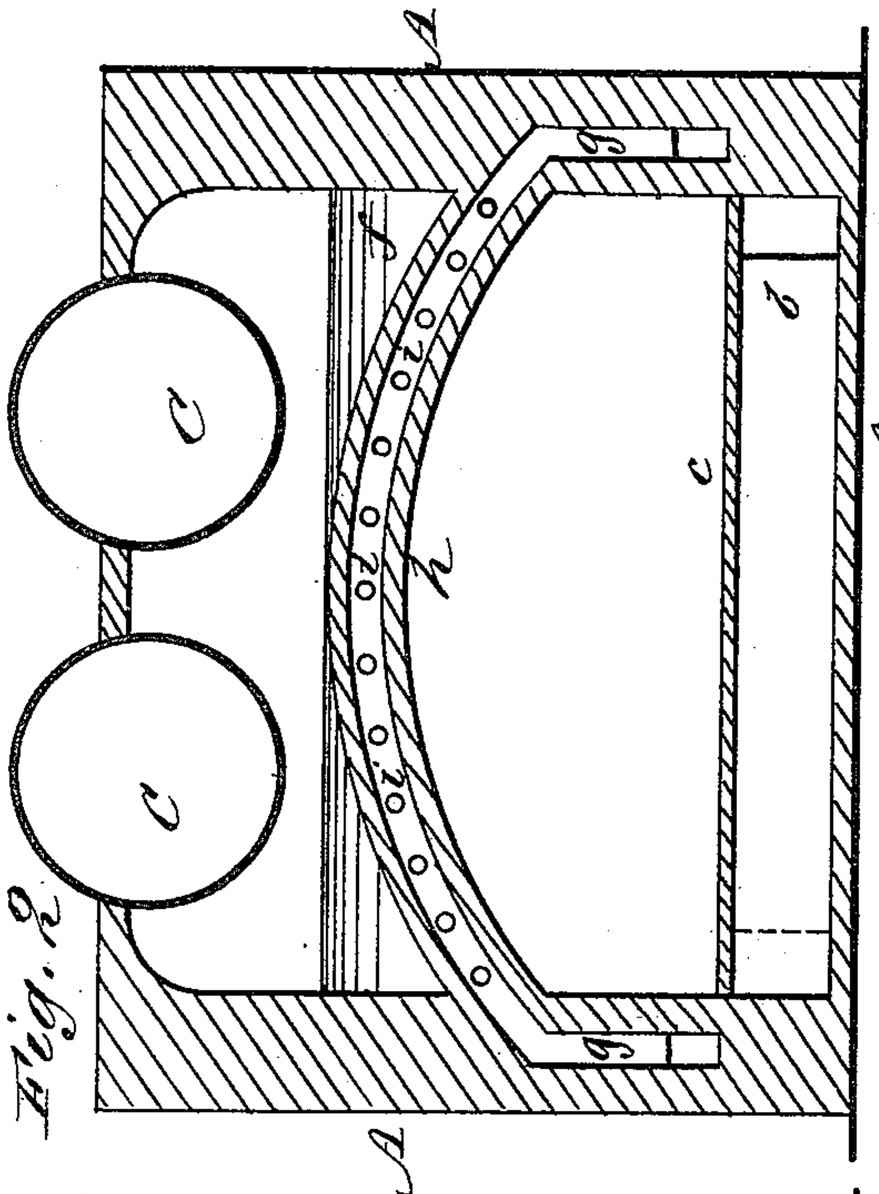

Fig. 2.

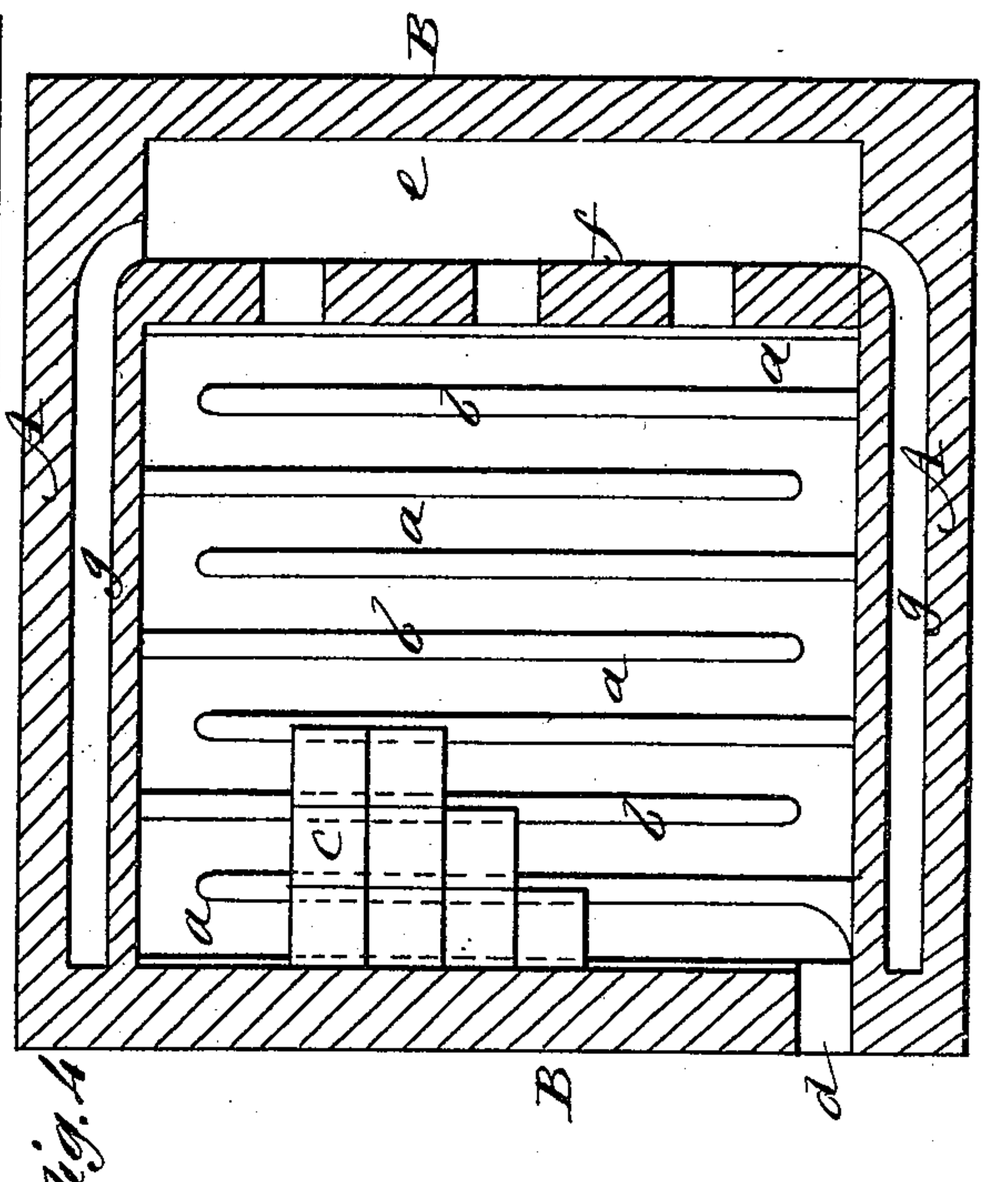

Fig. 4.

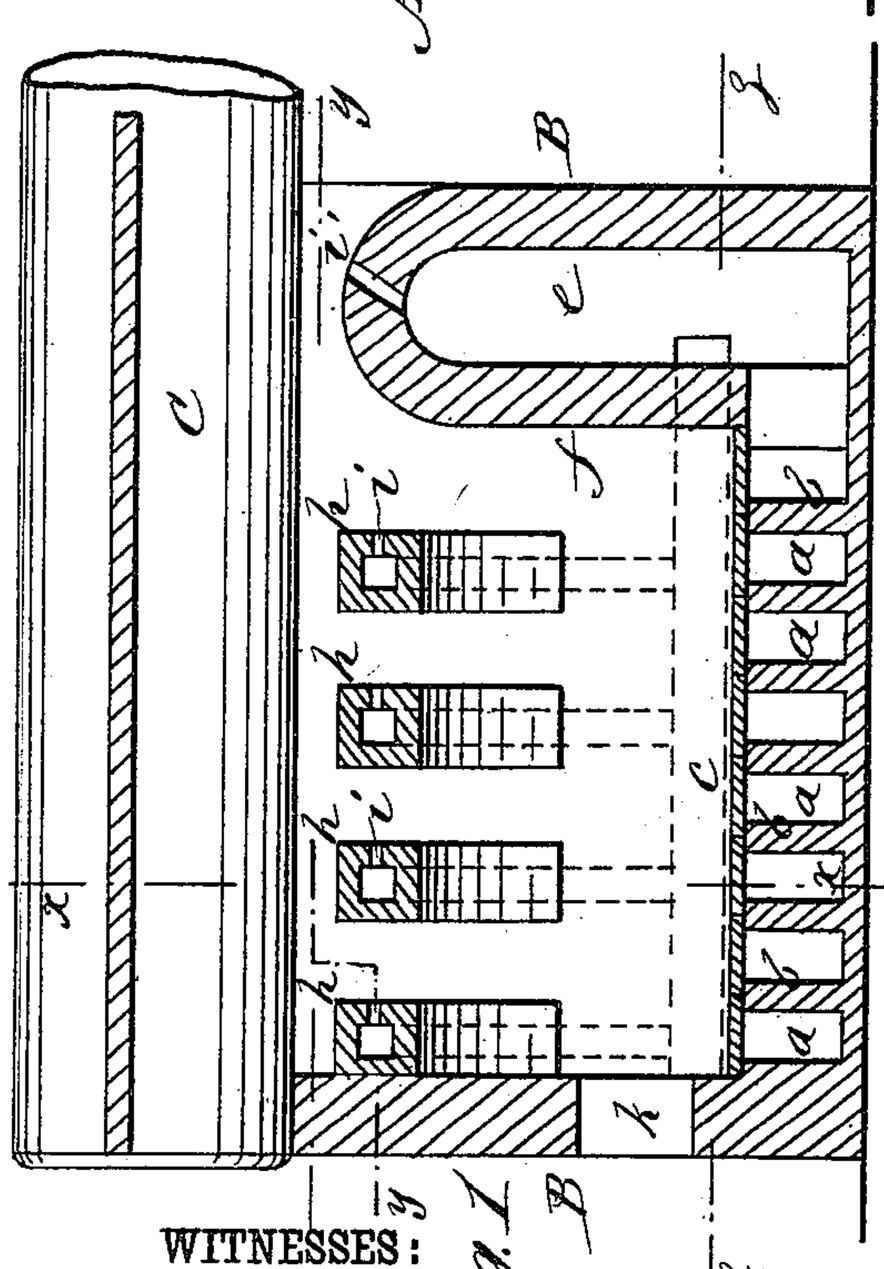

Fig. 1.

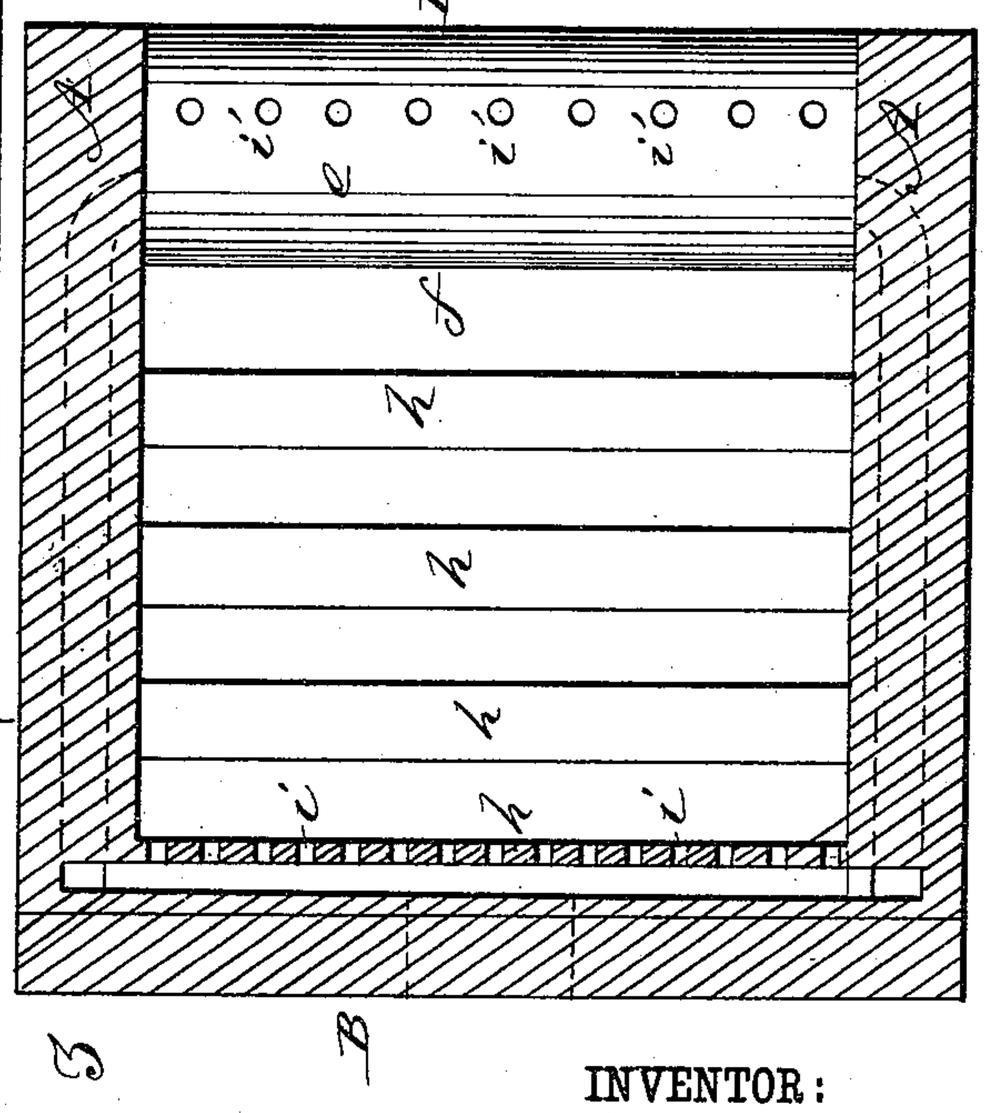

Fig. 3.

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JAMES SCOTT, OF PITTSBURG, PENNSYLVANIA.

COMBUSTION-CHAMBER FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 270,490, dated January 9, 1883.

Application filed November 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES SCOTT, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Combustion-Chamber for Steam-Boilers, of which the following is a full, clear, and exact description.

The object of my invention is to construct a chamber for utilizing the gases from blast-furnaces in the production of steam, so as to require no solid fuel in the boiler-furnaces.

To that end my invention consists in a gas-combustion chamber provided with air-heating flues and spaces in which the air is heated, and through which it is supplied to the chamber for effecting the perfect combustion of the gases, as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section of my improved combustion-chamber longitudinally of the boilers. Fig. 2 is a vertical section on line *x x* of Fig. 1. Fig. 3 is a horizontal section on line *y y*, and Fig. 4 a similar view on line *z z*, of Fig. 1.

A A are the side walls, and B B the end walls, of the chamber, constructed of brick. C C are the boilers, supported above the chamber by the end walls. At the bottom of the chamber are a series of parallel air-passages, *a*, formed by transverse partitions *b*, covered by tiles *c*. These passages connect alternately at their ends, so as to form a continuous passage from an inlet, *d*, formed in one end wall B, to an air chamber, *e*, formed by a wall, *f*, and the opposite end wall B, this chamber being arched, as shown. In the side walls, A, there are longitudinal passages *g*, connecting with air-chamber *e*, and also with a series of hollow arches, *h*, that extend across the combustion-chamber. These arches *h* pass near the under side of the boilers, and are perforated, as shown at *i*, to allow escape of the air into the chamber. The air-chamber *e* also has apertures *i'* for the same purposes. In one end wall B is an inlet, *k*, for gases, and at the opposite end the products of combustion pass out over the top of the air-chamber *e* to a suitable flue or chimney.

In operation, the combustion-chamber is supplied with the gases from a blast-furnace using either coke, coal, or charcoal, and as soon as the chamber becomes heated air is supplied at the inlet *d*, a blower being employed to force the air. The air passing through the passages *a* to chamber *e* and arches *h* becomes highly heated, and is discharged by openings *i* and mingles with the gases in the best possible conditions for promoting combustion of the gases. In this manner the heated gases are utilized to the greatest extent possible, and no solid fuel is required to maintain combustion.

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

1. The combination and arrangement, substantially as described, of the air-passages *a* and hollow arches *h*, with the combustion-chamber for burning gases.

2. The air-chamber *e*, hollow arches *h*, and air-passages formed by partitions *b* and tiling *c*, combined with the walls A B of the combustion-chamber for steam-boilers, substantially as described.

JAMES SCOTT.

Witnesses:
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