(No Model.)

R. P. LOTZ.

GAS BURNER.

No. 557,281. Patented Mar. 31, 1896.

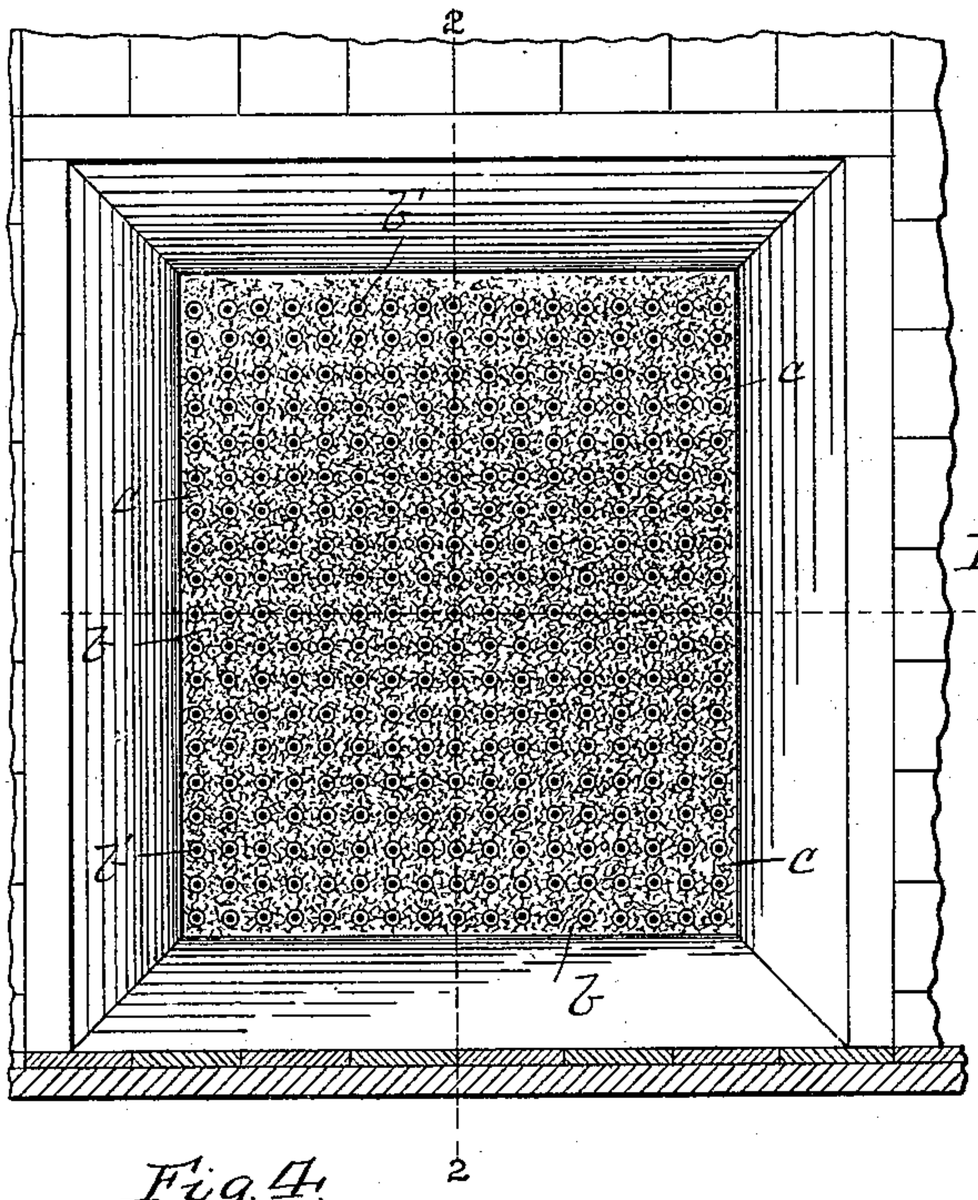

Fig. 1.

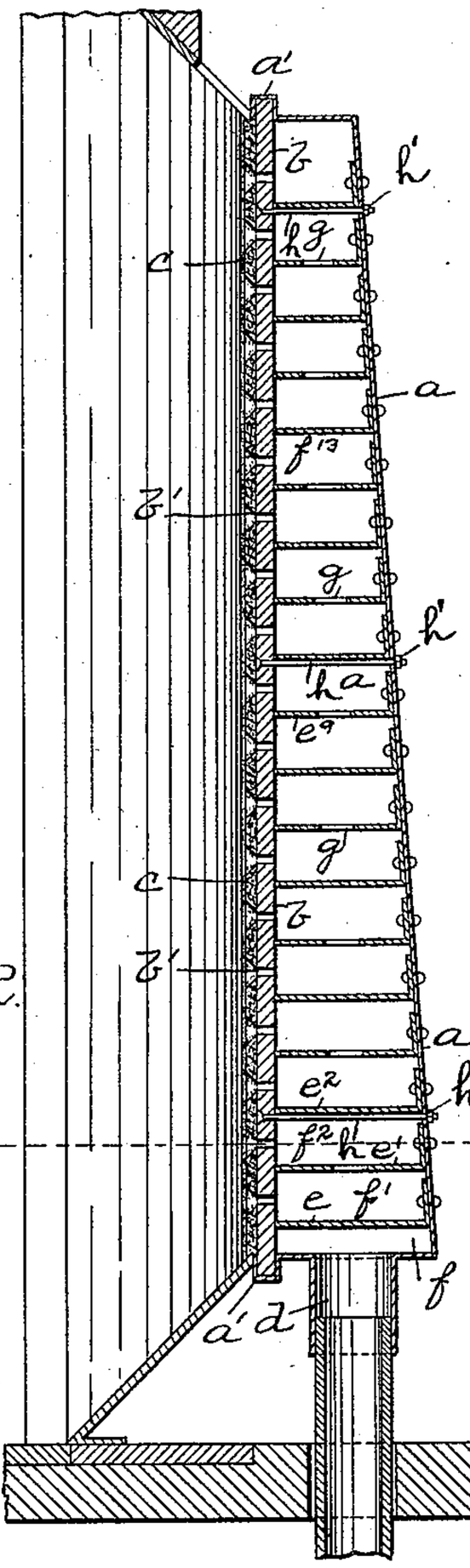

Fig. 2.

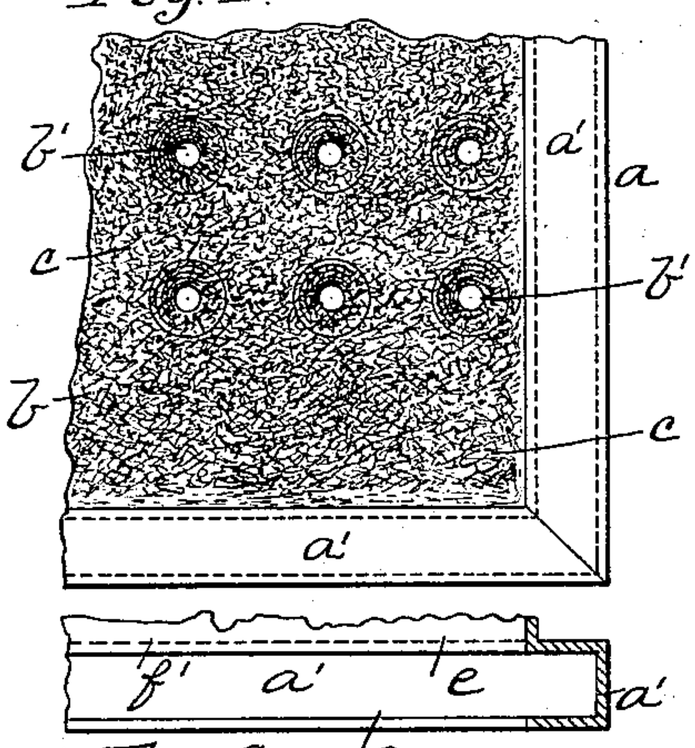

Fig. 4.

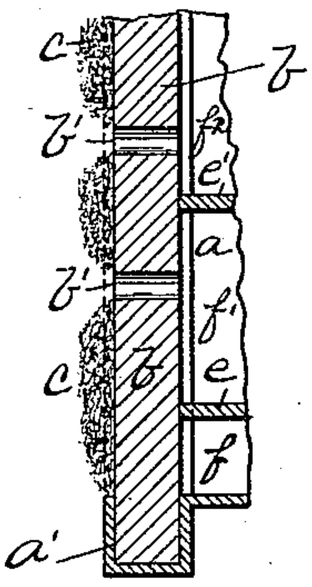

Fig. 5.

Fig. 6.

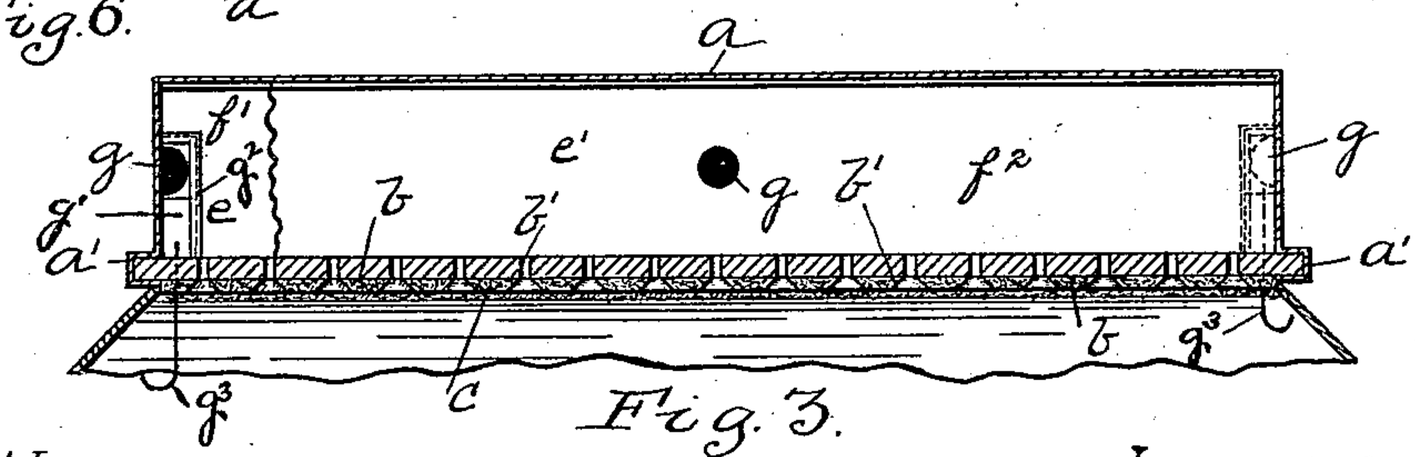

Fig. 3.

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UNITED STATES PATENT OFFICE.

REINHART P. LOTZ, OF ALLEGHENY, PENNSYLVANIA.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 557,281, dated March 31, 1896.

Application filed March 1, 1894. Serial No. 501,916. (No model.)

To all whom it may concern:

Be it known that I, REINHART P. LOTZ, a resident of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Gas-Burners; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to gas-burners for burning gas for heating purposes.

My invention comprises certain improvements and combinations of parts, all of which will be fully hereinafter set forth and claimed.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a front elevation of my improved burner as applied to a fireplace. Fig. 2 is an enlarged longitudinal section thereof on the line 2 2, Fig. 1. Fig. 3 is a section on the line 3 3, Fig. 1. Fig. 4 is an enlarged face view of a portion of the front. Fig. 5 is a vertical cross-section of same. Fig. 6 is a view of the form of the groove for receiving the front.

Like letters indicate like parts in each of the figures.

The box or shell *a* of my improved burner is formed of suitable metal, the edges thereof being bent to form the grooves *a'* for the reception of the asbestos or other incombustible front *b*. To insert such a front, one of the edges of said box or shell—for instance, the top edge—may be bent back to permit of the insertion of said front into the grooves *a'* in the sides, whereupon said front is forced down until the bottom thereof enters the groove in the bottom of said box or shell. The top edge of said front *b* is then bent back, so that the groove will engage the upper edge of said front. The said grooves furnish a secure support for said front and prevent its displacement. If the front *b* becomes worn out, it can be readily removed by bending back one of the edges of the said box or shell and a new one be inserted.

The front *b* is preferably formed of asbestos board with fiber of the same material secured thereto. In constructing the front *b* I first cover a solid board of asbestos with the asbestos fiber *c*, which is secured thereto by a suitable paste. The openings *b'* are then punched through the fiber and board. As the openings *b'* are preferably countersunk, I employ a punching-tool which will give said openings this form.

The box or shell *a* is provided with the gas-inlet *d*, which acts as a mixer in the ordinary manner. The box or shell *a* tapers from the base to the top, and within said box or shell are the partitions *e e' e²*, &c., which divide said box or shell into the compartments *f f' f²*, &c. To open communication between the several compartments *f f' f²*, &c., openings *g* are formed in the partitions *e e' e²*, &c., and in order to provide for the diffusion of the gas throughout the length of the said compartments *f f' f²*, &c., said openings *g* are arranged in the partition *e* at or adjacent to the ends thereof and in the partition *e'* at or about the middle thereof, there only being one opening *g* in the latter case. The next partition *e²* has the openings *g* at the ends thereof, and so on throughout the series this arrangement is followed. Any number of partitions or openings may be employed.

In order to provide for regulating the supply of gas to the different compartments, I employ the dampers or slides *g'*, adapted to close the openings *g*. The said slides *g'* move in guides *g²*, and secured to said slides are the wires *g³*, which pass out through the front *b*, so that by means of said wires the said slides may be moved back and forth to open or close the openings *g*, as the case may be. I prefer to employ said slides only on the openings at the ends of the partitions.

The openings *b'* of the front *b* are arranged to open communication with the compartments *f f' f²*, &c. In order to hold the inner face of the asbestos front *b* in close contact with the edges of the partitions *e e' e² e³*, &c., to prevent the gas from passing up between said partitions and said front, I employ the tie-bolts *h*, which pass through openings in the front *b* rearwardly through the back plate of the box or shell, where the nuts *h'* engage said bolts. By tightening the nuts *h'* the front *b* can be brought into close contact with the edges of the partitions.

The operation of my improved burner is as follows: The burner having been arranged in connection with a suitable fireplace in the manner illustrated, the gas, when turned on,

passes up through the mixer into the box or shell *a*. The gas upon entering the compartment *f* strikes the partition *e*, and, seeking for a way of escape, a portion of it passes out the first row of countersunk openings *b'* of the front *b*, where fire is applied to ignite it, while a portion passes to the ends of said compartment *f* and passes up through the openings *g* into the compartment *f'*. The gas on entering the compartment *f'* seeks the openings *b'* in the front *b* leading therefrom and is ignited, while a portion of said gas passes up through the opening *g* at or about the middle of said compartment *f'* to the compartment f^2. This course of the gas is repeated in the remaining compartments until the gas is ignited at all of the openings *b'* of the front *b*. In this manner the gas is thoroughly distributed and heated, so that no waste occurs. By having the box or shell *a* tapering from the bottom to the top the gas as it ascends is confined within a smaller space, so that, although the lowest row of openings *b'* receives the first supply of gas, yet the uppermost row of openings *b'* will receive practically as much gas as the lowest row, so that an even heat is reflected from the entire surface of the front. The countersunk openings *b'* allow the gas to spread out when ignited, so that a continuous line of flame extends from one end of a row to the other, thereby increasing the heat and allowing for a more thorough combustion of the gas.

In case it is desired to diminish the supply of gas, not only may the supply be decreased by turning the gas-supply valve, but if it is desired to burn the gas at only three rows, for instance, of the openings *b'* of the front *b* the slides *g'* on the partition e^2 would be drawn over the openings *g* therein and the gas be prevented from entering the next higher compartment. In this manner the escape of any unconsumed gas is prevented, and the heat is thus easily regulated. These slides may be arranged at different heights, so as to allow for the burning of the gas at a greater or less number of rows of the openings *b'*, as may be desired.

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

1. In a gas-burner, a box or shell having an inlet, two or more partitions in said box or shell, one of said partitions having openings at or adjacent to the ends thereof, the succeeding partition having an opening at or about the middle thereof, and an incombustible front having openings therein between said partitions, substantially as and for the purposes set forth.

2. In a gas-burner, a box or shell having an inlet, two or more horizontal partitions therein having openings at or adjacent to the ends thereof, movable covers on said openings, and an incombustible front having openings therein between said partitions, substantially as and for the purposes set forth.

3. In a gas-burner, a box or shell having an inlet, two or more horizontal partitions therein having openings at or adjacent to the ends thereof, guides on said partitions, slides moving in said guides, an incombustible front having openings therein between said partitions, and connections from said slides to the exterior of said box or shell for moving said slides, substantially as and for the purposes set forth.

In testimony whereof I, the said REINHART P. LOTZ, have hereunto set my hand.

REINHART P. LOTZ.

Witnesses:
ROBT. D. TOTTEN,
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