

J. E. GAITLEY.
STOVE.

APPLICATION FILED DEC. 26, 1907.

987,978.

Patented Mar. 28, 1911.

2 SHEETS—SHEET 1.

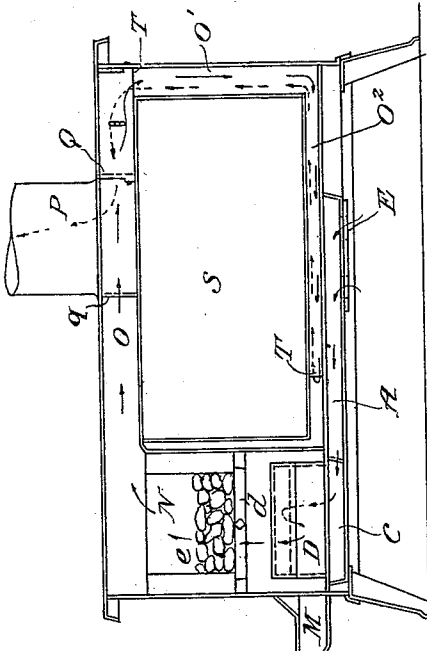


Fig. 2.

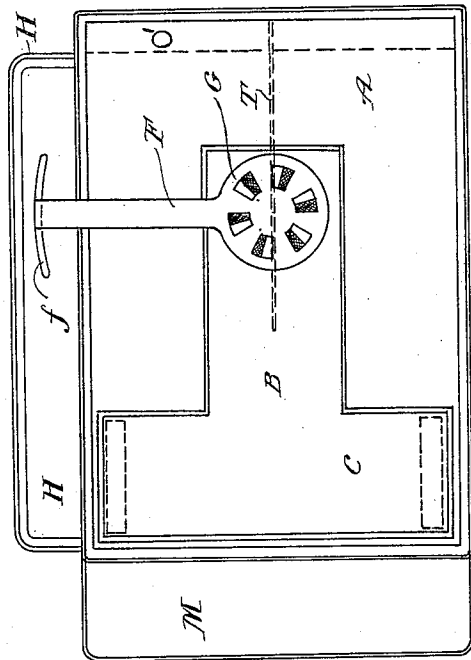


Fig. 3.

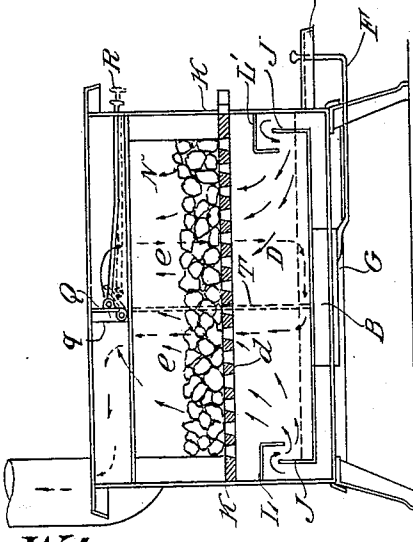


Fig. 1.

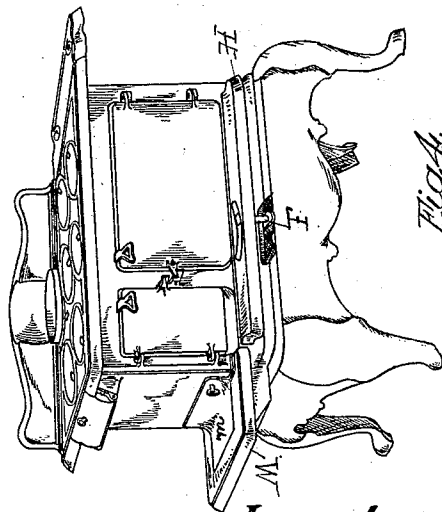


Fig. 4.

Witnesses

Dudley Swasey
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Inventor

John E. Gaitley

by
Frederick W. Cameron, Atty

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2 SHEETS-SHEET 2.

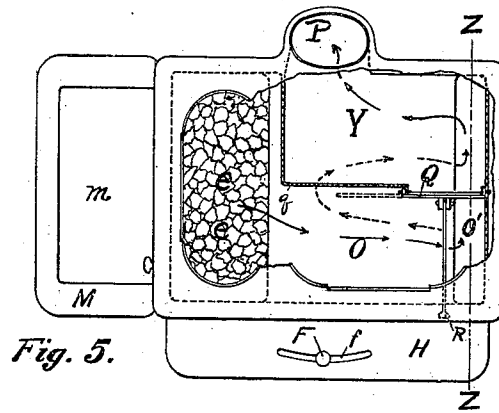


Fig. 5.

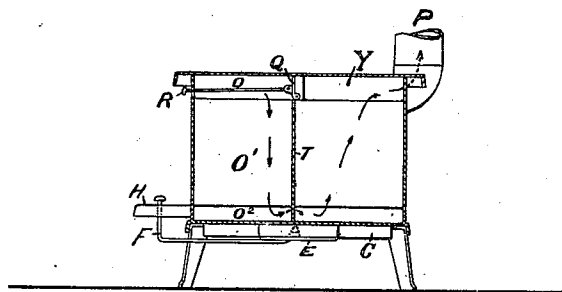


Fig. 6.

WITNESSES:

Little Prior.
Dudley S. Wadsworth

INVENTOR

John E. Gaitley,
BY *Frederick W. Cameron,*

ATTY.

UNITED STATES PATENT OFFICE.

JOHN E. GAITLEY, OF ALBANY, NEW YORK, ASSIGNOR TO ALBANY FOUNDRY COMPANY, OF ALBANY, NEW YORK, A CORPORATION.

STOVE.

987,978.

Specification of Letters Patent. Patented Mar. 28, 1911.

Application filed December 26, 1907. Serial No. 408,109.

To all whom it may concern.

Be it known that I, JOHN E. GAITLEY, a citizen of the United States, residing at Van Rensselaer Island, in the city of Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Stoves, of which the following is a specification.

My invention relates to stoves and ranges, and the object of my invention is to provide a stove or range particularly adapted for burning coke, and to provide a means for heating the air used for assisting in combustion before it is brought in contact with the fuel, together with such other elements and combinations as are hereinafter more particularly set forth and claimed. I accomplish these objects by means of the mechanism illustrated in the accompanying drawings, in which:

Figure 1 is a transverse section. Fig. 2 a longitudinal section. Fig. 3 an inverse plan view of the bottom of the stove. Fig. 4 a perspective view of a range to which my invention is applied. Fig. 5 is a plan. Fig. 6 a section along the line Z—Z on Fig. 5.

Similar letters refer to similar parts throughout the several views.

I have shown in the drawings a range provided with an air box, B, secured to or formed on the bottom, A, thereof, the air box having a portion, C, extending preferably from one side of the range to the other beneath the ash pit, D. In the air box, B, I have a register, E, which may be opened or closed by means of the lever, F, provided with a suitable disk, G, having openings therethrough adapted to coincide with openings in the air box, and so arranged that the movement of the handle, F, from right to left will open and close the register. The end of the lever, F, is preferably right angled, as shown in Fig. 1, and protrudes through a curved opening, *f*, in the shelf, H, on the side of the stove or range.

Along the side of the stove within the ash pit I provide for the entrance of the air beneath the grate, *d*, for assisting combustion, which passes through the register, E, air boxes, B and C, through the two upright flues on each side of the front of the stove formed by the projections, J, J, secured to the top of the air box, C, and the sides, K, K, of the range. To prevent ashes from passing into these flues at each end of said box I

place over the same the covers, L, L', which are preferably right angled and extend from the side of the stove above the projections, J, J, and farther into the interior of the stove than said projections, allowing for the air in the box to pass out beneath the covers in the manner indicated by arrows in Fig. 1.

The ash pit, D, is very similar to that of an ordinary stove, except that there is preferably no opening for the draft therein except that provided as hereinbefore set forth, by means of the air boxes, B and C. For the purpose of removing the ashes I may place in the hearth, M, a suitable door, *m*.

Above the grate, *d*, in the fire box, N, the fuel, *e*, is placed.

The space over the oven, S, is separated into two compartments, O and Y, by means of a right angled partition, *q*, which extends from the side of the stove near the chimney flue, P, to a point toward the longitudinal medial line of the space above the oven, and then extending to that end of the stove opposite the fire box. In said partition near its end opposite the fire box, I place a damper, Q, which when opened makes communication between the space, O, and the space, Y, whereby the gases, smoke and products of combustion in the fire box may pass through the space, O, into the space, Y, and from thence into the chimney flue, P. The damper, Q, may be raised or lowered by means of the rod, R, connected therewith and passing through the side of the stove as shown in Figs. 1 and 5, the dotted lines in Fig. 1 showing the position of the damper when it is partly opened, its preferable position when the fire is starting, the full lines indicating its closed position. When the damper is opened the gas and smoke will pass directly from the fire box into the space, O, and from thence into the space, Y, and out through the flue, P. When the damper is closed the smoke and gas will pass into the space, O, and then downward through the space O' into the space O², around the partition, T, and upward into the space, Y, and out through the flue, P, as indicated in Figs. 5 and 6 by the arrows. The products of combustion, carrying the heat, pass from the fire box and through the space, O, which in case of a range is over the oven, S, and toward the back of the stove where they pass downward through the space O' to the space O² at the bottom

of the oven, thence around the flue partition, T, which is in the space O' and O² as shown in Fig. 2.

The air entering the air box, B, is warmed by coming in contact with the bottom, A, of the stove, because of the warm air circulating within the space, O², so that when it reaches the grate, d, it is hot and adds to the efficiency of the range, because none of the heat from the grate or burning fuel is taken away or retarded as is the case when cold air is brought in contact therewith.

Except when starting a fire and for a very few moments thereafter the damper, Q, will be closed and my stove will be substantially air tight, that is, there will enter no air except the heated air which is intensely hot and is delivered below the grate from the flues at the side of the range between the projections, J, J, and the walls, K, K, of the range in the form of a hot blast and which is controlled by the lever, F, and may when desired be entirely shut off.

Great difficulty has heretofore been experienced in burning coke in a stove. A coke fire is so hot that it quickly destroys an ordinary stove and it burns so fast that it is not generally considered practical for domestic use. I have found that if the air is heated, the fire may be controlled to such an extent that the stove will not be burned out; that an equable heat may be delivered and combustion maintained without attention all night.

My invention furnishes a stove in which a by-product, coke, may be burned successfully and thus a cheap fuel furnished those who cannot afford to pay for coal.

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

1. A stove adapted for burning coke or a like fuel, comprising a fire box; an air box placed on the bottom of the stove; projections on that portion of the air box extending beneath the fire box spaced from the side of the fire box, through which air from the air box may enter the stove; a register in the air box; a means for opening and closing the register from the side of the stove; an oven spaced from the top bottom and end of the stove; a partition above the oven at the top of the stove di-

viding the space into two compartments; a chimney flue registering with one of said compartments, the fire box having free communication with the other of said compartments; a damper in said partition; a partition between the bottom of the oven and the bottom of the stove and between the end of the oven and the end of the stove forming a duct extending from that portion of the space at the top of the stove communicating directly with the fire box and a duct extending from that portion of the space above the oven communicating directly with the chimney, substantially as described.

2. A stove adapted to be made substantially air tight, comprising a fire box; an air box on the bottom of the stove communicating with the fire box beneath the fire; a means for controlling the passage of air through said air box into the stove; a chimney flue; an oven which is spaced from the top, end and bottom of the stove; a means for conducting the heat from the fire box to the bottom of the stove above said air box, comprising a duct formed by a partition in the space between the top of the oven and the top of the stove dividing the space into two compartments, one of which communicates with the fire box and the other with the chimney flue; a damper in said partition; a partition extending from the top to the bottom of the stove and along the bottom between the bottom and the oven, separating the space between the end and bottom of the stove and the oven into lateral compartments, one communicating with the compartment at the top of the stove which is in direct communication with the fire box, the other with the compartment at the top of the stove in direct communication with the chimney flue, whereby the circulation of hot air is, when the damper is closed, from the fire box down the end of the stove, across the bottom thereof, above the air box, around the partition and out through the chimney.

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

JOHN E. GAITLEY.

Witnesses:

LOTTIE PRIOR,

DUDLEY B. WADE.