

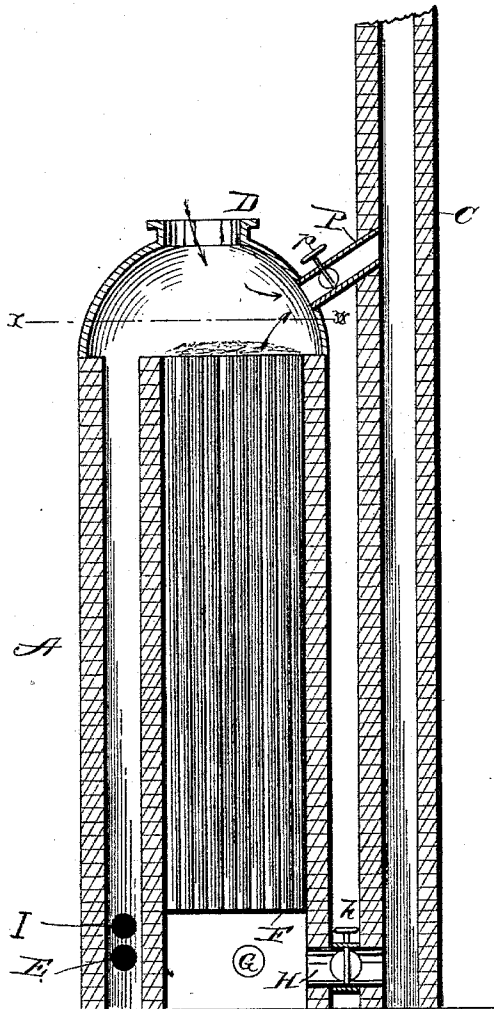
(No Model.)

D. CAVE.

VENTILATING ATTACHMENT FOR HOT BLAST STOVES.

No. 562,708.

Patented June 23, 1896.



witnesses:

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UNITED STATES PATENT OFFICE.

DANIEL CAVE, OF SHARON, PENNSYLVANIA.

VENTILATING ATTACHMENT FOR HOT-BLAST STOVES.

SPECIFICATION forming part of Letters Patent No. 562,708, dated June 23, 1896.

Application filed January 24, 1896. Serial No. 576,737. (No model.)

To all whom it may concern:

Be it known that I, DANIEL CAVE, a citizen of the United States, residing at Sharon, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Ventilating Attachments for Hot-Blast Stoves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which forms a part of this specification.

My invention relates to an improved ventilating attachment that is especially adapted to that class of hot-blast stoves which are heated by the waste gases from furnaces and which are in turn utilized to heat the blast of said furnaces by supplying a heated fluid thereto; and the invention has reference more particularly to a method and means for removing accumulations of gas from regenerator hot-blast stoves when the flow from the furnace has been shut off and the stove is withdrawn from duty, to enable the entrance of attendants at the top of said stove for the purpose of making repairs or to allow of the work of removal of deposit left by the gases upon the walls of the regenerator-tubes; and said invention consists, primarily, in so locating a special gas-exit tube or duct in relation to the outlet-openings at the top of said regenerator-tube and in respect to the opening provided in the crown of the stove that connects with the open air that air entering the latter will set up a current that will flow over the outlet-openings of the tubes to said gas-exit pipe, thereby causing a draft upward through said gas-exit pipe that tends to draw a current of gas-laden air up through the tubes that will exhaust into the gas-exit pipe for their removal, and which will also tend to draw off the heated gases which usually lie in the crown portion of the stove and thereby quickly create by this circulation a lowering of temperature in the interior of the stove, as well as obviating all danger to the attendants from heated and foul fumes upon their entrance to the crown interior of the stove.

The preferred construction for accomplish-

ing this purpose is shown in the accompanying drawing.

These hot-blast stoves are used in connection with blast-furnaces running continuously day and night, and are of the type known as "single-surface" stoves, in which the unconsumed and heated gases from the blast-furnace are admitted to and ignited within the combustion-chamber and allowed to pass through the regenerator-tubes, heating them up. When sufficiently heated, the gases are cut off and a current of air is allowed to traverse the tubes in an opposite direction, and the air thus heated is injected to the blast through the blast-supply pipe.

In the drawing, A represents the stove; B, the crown portion thereof; C, the stack or chimney connecting therewith; D, the man-hole-opening in the crown; E, the inlet for the heated gases, which inlet is also used as the outlet for the heated air when the stove is employed in furnishing a hot blast to the furnace.

F indicates the regenerator tubes or passages, G the air-inlet pipe, and H the stack connection.

There is shown at the top of the regenerator tubes or passages G a mass of dirt accumulations which have been withdrawn from the tubes, and it is at this point where the workmen are most subjected to the fumes of gas.

I is the air-inlet pipe for supplying air for the combustion-chamber.

The general interior and the manner of connecting up and using the stove present no points of novelty, my invention having reference simply to the ventilating attachment, of which P is the gas-exit tube or duct, which enters the crown at a suitable point and forms a communicating passage with the adjacent stack. In practice I make an opening of about ten inches in diameter at a determinate point in the crown and rivet or bolt on a suitable cast-iron pipe to extend to a like opening in the stack, the pipe being slightly inclined upward to induce circulation. I provide said pipe with a suitable valve or damper, as shown at *p*, and which is intended to control said outlet. It is the function of this pipe to produce two lines of draft, as indi-

cated by arrows, in the crown of the stove, and it is important that the point of entrance of said pipe should be so positioned that the line of travel of the draft from the regenerator-tubes to this exit-pipe shall not rise above a certain level in said crown, as indicated by dotted lines *xx*. In practice this permissible gas-line should not extend but a few feet above the outlet-openings of the regenerator-tubes, so that the workmen engaged in cleaning same can be accessible to the inflowing fresh air.

Having described my invention, I desire to claim as new and useful—

The combination with a hot-blast stove provided with vertically-disposed regenerator-passages and an opening in the top of said stove that communicates directly with the outer air, of a gas-exit pipe located at an intermediate point between the outlet-openings of said passages and the top opening of the stove, substantially as described.

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

DANIEL CAVE.

Witnesses:

JOHN H. ELLIOTT,

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