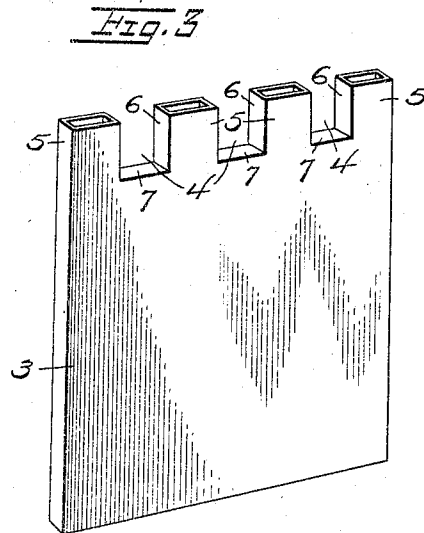
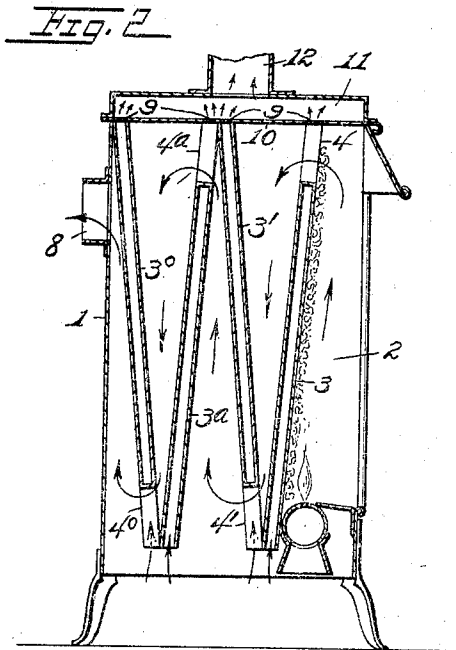
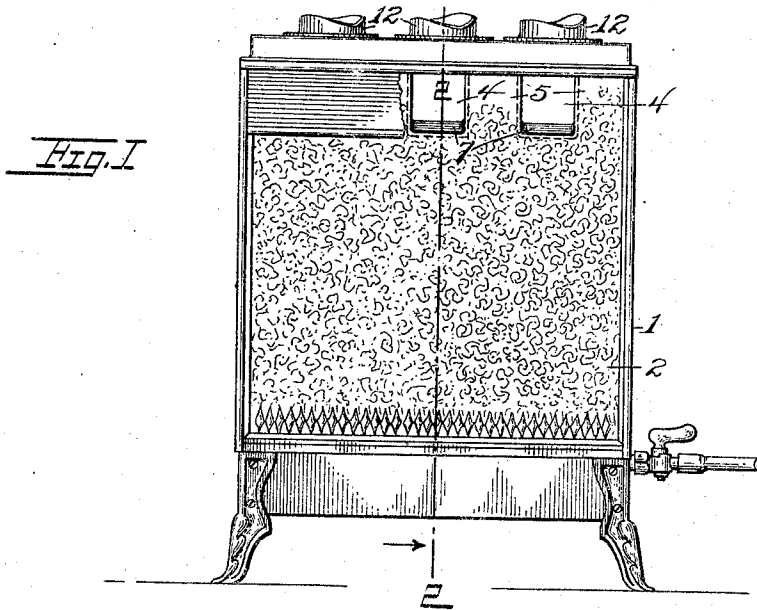


A. M. LORENTZ.
HEATING APPARATUS.
APPLICATION FILED JUNE 4, 1909.

980,649.

Patented Jan. 3, 1911.



WITNESSES:
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UNITED STATES PATENT OFFICE.

ALBERT M. LORENTZ, OF McMECHEN, WEST VIRGINIA.

HEATING APPARATUS.

980,649.

Specification of Letters Patent.

Patented Jan. 3, 1911.

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To all whom it may concern:

Be it known that I, ALBERT M. LORENTZ, a citizen of the United States of America, and resident of McMechen, county of Marshall, and State of West Virginia, have invented certain new and useful Improvements in Heating Apparatus, of which the following is a specification.

This invention relates to heating apparatus, and more particularly to a heating device whereby one or more rooms of a building may be economically heated.

An object of the invention is to provide a stove, radiator, or heater, which embodies therein a plurality of baffles so constructed and disposed with relation to each other as to form a tortuous passage for the products of combustion, means being thus provided whereby the heat which would otherwise escape through the flue and be wholly lost is retarded in its passage to the flue and is partially absorbed and radiated into the room in which the apparatus rests, or is absorbed by currents of air and conducted through suitable channels to another room or rooms.

A further object is to provide means whereby an induced circulation of cold air through the heater structure is obtained, which air is heated by contact with the heated baffles and is discharged directly into the room occupied by the apparatus, or is conducted through one or more pipes to another room or rooms.

With these and other objects in view, the invention finally consists in the particular construction, arrangement and combination of parts which will hereinafter be fully described, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a front elevation of a heating stove embodying the invention, a portion of the hood being shown broken away; Fig. 2 is a vertical section of the same on line 2—2, Fig. 1; and Fig. 3 is a detail perspective view of a baffle.

In the present embodiment, the invention is shown and described as used in, or applied to, an ordinary type of gas heating stove; it will, however, be understood that the invention may be embodied in or applied to heaters and furnaces of widely different types in which either gas or other fuel is used.

Referring to said drawings, in which like

designating characters distinguish like parts throughout the several views—1 indicates a heater casing, and 2 designates a combustion chamber, the latter being shown open in front, but which may be wholly inclosed, if desired. In the rear of, or constituting the rear wall of, said combustion chamber is an asbestos-coated baffle 3, preferably inclined forward, as shown, which consists of a hollow shell of substantially rectangular form, and is preferably made of sheet metal, and which extends from a point near the base of the casing to the top or the roof of the latter. The lower end of said shell extends horizontally in a continuous unbroken line and is open throughout to the atmosphere, while the upper end thereof is offset or recessed to form one or more passages or flues 4 opening from one side of the baffle to the other. A plurality of chimney-like flues 5, open at their upper ends, is constituted at the upper end of the shell by closing the sides of the remaining portions or extensions adjacent to said passages 4, as shown at 6, said flues 5 alternating with said passages 4. The passages 4 are also separated from the interior of the shell by a wall 7, the air which enters said shell at the bottom being discharged from the top of the flues 5 and not mixing with the products of combustion passing through the structure.

A second baffle 3' is located to the rear of said baffle 3 and is inclined away therefrom. The baffle 3' is, however, mounted in reversed position, having its alternate passages 4' and the flues 5' at the lower end thereof instead of at the upper end. Further baffles, such as 3^a and 3^b, may be employed, as shown, in a series of any length, said baffles being disposed in staggered relation—that is, adjacent baffles having reverse inclinations—and adjacent baffles are disposed in reverse position.

From the foregoing it will be apparent that the products of combustion emanating from the burning fuel in the combustion chamber 2 will be conducted through alternate ascending and descending flue-like chambers located between said baffles, said products first passing through the passages 4 at the upper end of baffle 3, whence they travel down and through the passages 4' at the lower end of baffle 3', thence rise and pass through the passages 4^a at the upper end of a baffle 3^a, thence pass down and

through the passages 4° at the lower end of baffle 3°, whence they pass to and through the discharge flue 8. In passing through the somewhat tortuous passage described, not only is the heat which is seeking escape with the other products of combustion retarded so that it will be partially absorbed by the walls of the casing and radiated therefrom throughout the room in which the heater is located, but said escaping heat plays directly upon the exposed surface of the several shell-like baffles, inducing currents of air to pass upward therethrough, heating the latter, and imparting heat to said air. The induced currents of air pass through perforations 9 in the top 10 into an overlying inclosed heat-receiving chamber 11, from which it may be conducted through one or more pipes 12 to a room or series of rooms for heating the latter.

By inclining the baffles and arranging them in staggered relation, I retard the passage of the products of combustion to a much greater extent than would be the case if said baffles were arranged vertically or in parallel relation. Consequently, an increased proportion of heat is extracted from the products of combustion in the passage of the latter through the device.

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

1. A heating apparatus comprising a casing, a combustion chamber at one side of said casing, a baffle forming one wall of said chamber, a discharge flue for the products of combustion, a heat-receiving chamber overlying said casing, and a plurality of hollow baffles interposed between the first-mentioned baffle and said flue, said baffles being disposed in oppositely inclined relation to form a tortuous alternating ascending and descending passage for the products of combustion in which they are successively exposed to the heat escaping with said products of combustion, and means embodied in

said baffles whereby the heat absorbed by the latter is communicated to induced currents of air passing therethrough and not mingled with said products of combustion.

2. In a heating apparatus, a casing, a combustion chamber at one side of said casing, a baffle forming one wall of said chamber, a discharge flue for the products of combustion, a plurality of baffles interposed between the first-mentioned baffle and said flue, each of said baffles comprising a hollow shell which is recessed at one end to form alternate passages for the products of combustion from one side of the baffle to the other and chimney-like extensions, said baffles affording a free passage for the air therethrough, adjacent baffles being inclined in opposite directions and being mounted in reverse positions, a heat-receiving chamber into which air is directed from said baffles, and conducting pipes leading from said chamber.

3. In a heating apparatus, a casing, a combustion chamber within said casing, an inclined baffle forming one wall of said casing, a discharge flue for the products of combustion, and a plurality of baffles interposed between the first-mentioned baffle and said flue, each of said baffles comprising a hollow shell which is recessed at one end to form alternate passages for the products of combustion, from one side of the baffle to the other and chimney-like extensions, said baffles affording a free passage for the air therethrough, said baffles being inclined with relation to each other and being mounted in reverse positions forming an alternately ascending and descending passage for the products of combustion.

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

ALBERT M. LORENTZ.

Witnesses:

H. E. DUNLAP,
ALFRED C. PAUL.