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 STOVE.  
 APPLICATION FILED FEB. 12, 1918.

1,307,433.

Patented June 24, 1919.

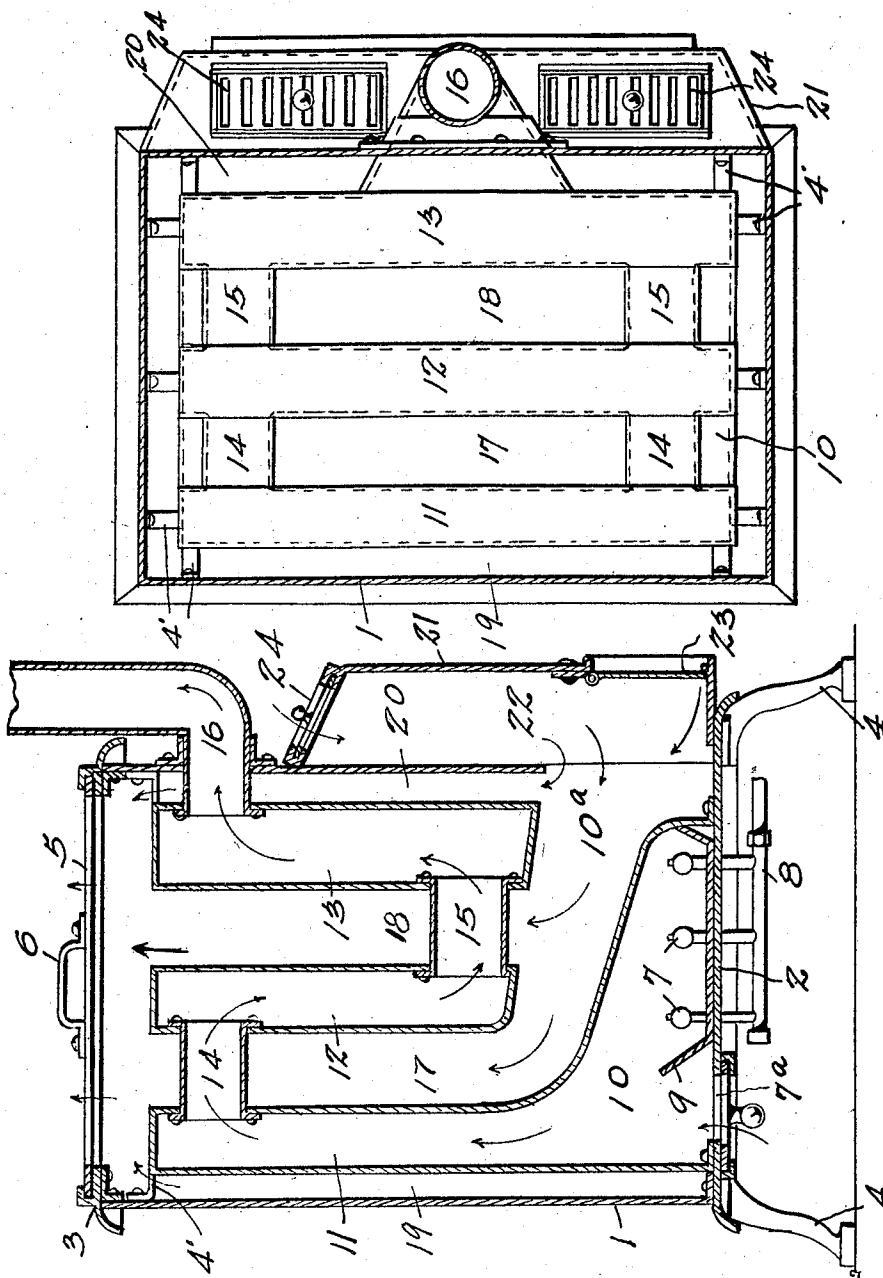


FIG. 2

FIG. 1.

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# UNITED STATES PATENT OFFICE.

FREDERICK BEUCKMAN AND HENRY BAUER, OF BELLEVILLE, ILLINOIS.

## STOVE.

1,307,433.

Specification of Letters Patent. Patented June 24, 1919.

Application filed February 12, 1918. Serial No. 216,699.

*To all whom it may concern:*

Be it known that we, FREDERICK BEUCKMAN and HENRY BAUER, citizens of the United States, residing at Belleville, in the county of St. Clair and State of Illinois, have invented certain new and useful Improvements in Stoves, of which the following is a specification.

Our present invention relates to improvements in stoves, particularly of the heating type that employs a liquid or gaseous fuel for heating the air.

The primary object of the invention is the provision of a hot air heater of this type that is comparatively simple in construction and operation, inexpensive of manufacture and maintenance, and in which the parts are so arranged as to produce a multiplex radiation of heat from the fire chamber to the heating chambers in order to quickly and thoroughly produce the required heat, for direct radiation to the room wherein the stove is located. The invention consists in certain novel combinations and arrangements of parts of the stove consisting of vertically disposed radiators forming heating mediums properly connected and so located as to form hot air spaces, all as will be more clearly set forth hereinafter in the specification and claims.

In the accompanying drawings we have illustrated one complete example of the physical embodiment of our invention arranged as a stove for heating a single room, both constructed and arranged according to the best mode we have so far devised for the practical application of the principles of our invention.

Figure 1 is a sectional view of our invention embodied in a heating stove.

Fig. 2 is a horizontal sectional view of the stove, showing the heat radiators or radiating chambers in top plan view.

In the form of the invention illustrated in Figs. 1 and 2 we preferably utilize a casing or jacket 1, of rectangular outline or shape, closed at its lower end with the bottom 2 and having a top 3, the stove being supported on legs 4 as usual. In the top 3 a register 5 of the well known type such as designated at 24 in Fig. 2 is located, a handle 6 being shown, by means of which the register may be operated to permit free passage or restricted passage of hot air from the stove.

Preferably liquid or gaseous fuel is em-

ployed, and to this end the burners 7 are shown, being supplied from the inlet or supply pipe 8, and provided with a baffle or guard plate or shield 9. The burners are located at the bottom of the stove, within an inclosure or combustion chamber 10 having an inclined top and occupying a major portion of the floor or bottom of the stove, and extending horizontally thereof, and at one side the combustion chamber is fashioned with an upright portion 11 which rises to near the top of the stove, and forms a radiator for heat as well as a conveyer or flue for the fumes from the burners in the combustion chamber 10. In addition to the radiator 11 there are two other radiators 12 and 13, the latter two being located above the combustion chamber 10 and forming a space 10<sup>a</sup> therebetween, and the three radiators, as will be evident, are spaced from each other and spaced from the jacket or walls of the stove casing 1. The three radiators stand in parallelism and are connected by the respective flues 14 and 15, the flues 14 connecting the first and second radiators being located at their upper ends, while the flues 15 connecting the second and third radiators are located at their lower ends, thus providing for a tortuous or zig-zag passage of the hot gases of combustion through the radiators, until they finally reach the outlet or smoke flue 16, which is located at the upper end of the radiator 13, and the fumes are then conveyed through a suitable chimney.

The location and disposition of the spaced radiators 11, 12, 13, provide for hot air spaces or chambers 17 and 18 between the radiators, and 19 and 20 between the stove jacket and the radiators, all of which spaces open freely to the air inlet space 10<sup>a</sup> above the combustion chamber 10. Air to be heated is admitted to the stove through the box 21 located at one side of the stove, just under the smoke flue 16, and opening into the heating space 10<sup>a</sup>, the interior chamber being indicated as 22. Air may be admitted to the chamber 22 and thence to space 10<sup>a</sup>, through a pipe from the atmosphere and through the opening closed by the gate 23, which gate may be adjusted for the purpose, or air may be admitted to the chamber 22 and thence to the heating space 10<sup>a</sup>, directly from the room through the open dampers or slides 24, 24 in the top of the inlet box 21. Air for combustion is

supplied through the opening 7<sup>a</sup> in the bot-  
 tom 2 of the stove, and the baffle, guard,  
 or shield 9 guides the air currents so that  
 the proper combustion takes place in the  
 5 combustion chamber 10. The course for  
 the gases of combustion is indicated by the  
 arrows, as they zig-zag their way through  
 the radiators and flues to the smoke flue  
 16, and the course of the heated air cur-  
 10 rents as they pass upwardly around the  
 radiators is indicated by the arrows until  
 they finally pass out through the register  
 5 in the top of the stove. It will be evi-  
 15 dence that a maximum surface for heat ra-  
 diation is attained by the disposition and  
 arrangement of the radiators, so that the  
 air currents flowing upwardly through the  
 stove will be quickly and thoroughly heated  
 before they pass through the register in the  
 20 top of the stove.

What we claim is:

1. A casing, a combustion chamber lo-  
 cated on the bottom of the casing and  
 formed with an inclined top, and a verti-  
 25 cal flue located at one side of the top and  
 terminating adjacent to the top of the cas-  
 ing and serving as a radiator, gas burners  
 in the combustion chamber adjacent to said  
 inclined top, radiators suspended in said  
 30 casing and communicating with each other  
 and with the combustion chamber flue and  
 an outlet flue and forming a tortuous pas-  
 sage for the products of combustion, said  
 casing having an air inlet in its bottom

opening into the combustion chamber and 35  
 an air outlet in its top, and an air inlet at  
 one side whereby the air is directed over  
 the top of the combustion chamber and  
 under and over the radiators, and a de-  
 flector adjacent the burners and the air inlet 40  
 opening in the bottom of the combustion  
 chamber.

2. A casing with air inlet opening at one  
 side and air inlet at the top; a combustion  
 chamber at the bottom of the casing with 45  
 an inclined top and merging into a verti-  
 cal flue radiator, a second radiator con-  
 nected at the upper end to the first radi-  
 ator, said second radiator connected at its  
 lower end by a flue to the lower end of a 50  
 third radiator and an outlet flue connected  
 to the upper end of said third radiator, the  
 air passing over the top of combustion  
 chamber and under and over the radiators  
 and out of the top of the casing, said casing 55  
 having an air inlet in its bottom opening  
 into the combustion chamber and an air  
 outlet in its top and an air inlet at one side  
 whereby the air is directed over the top of  
 the combustion chamber and under and over 60  
 the radiators, burners in the combustion  
 chamber, and a deflector adjacent the burn-  
 ers and the air inlet opening in the bottom of  
 the combustion chamber.

In testimony whereof we affix our signa- 65  
 tures.

FREDERICK BEUCKMAN.  
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