G. J. RYMAL.

COMBINED KITCHEN STOVE AND HOT WATER HEATER.

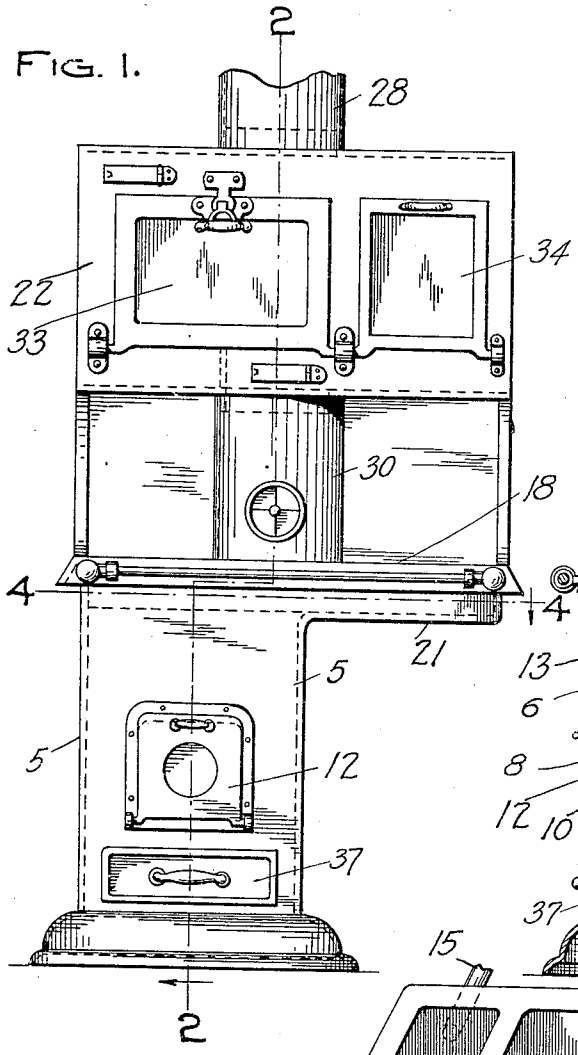
APPLICATION FILED JUNE 12, 1917.

1,319,969.

Patented Oct. 28, 1919.

2 SHEETS—SHEET 1.

FIG. 1.



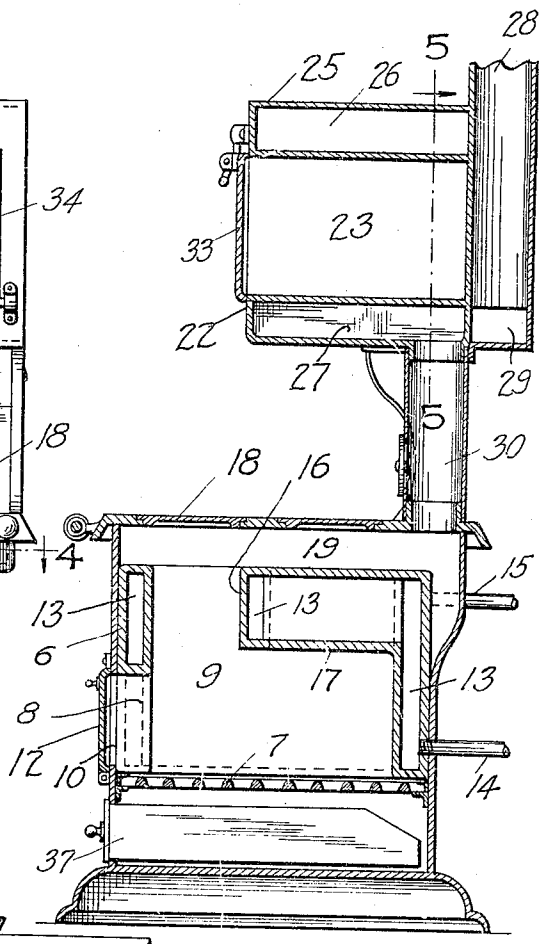


FIG. 2.

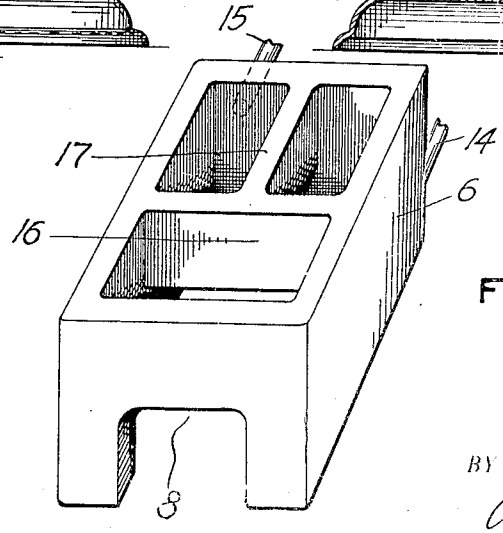


FIG. 3.

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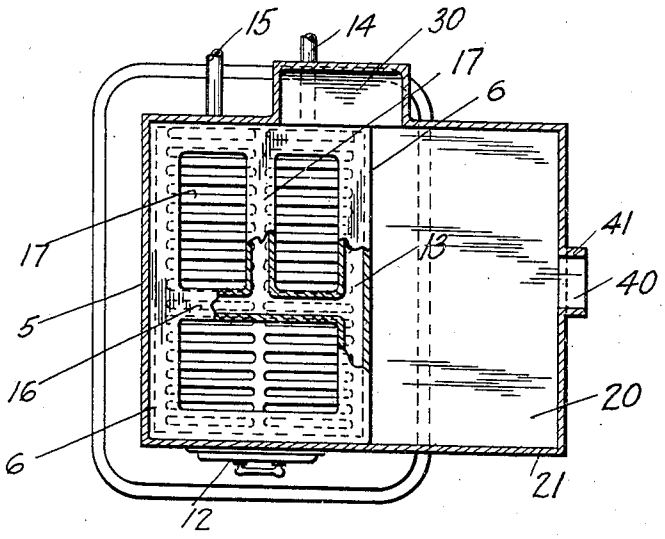
2 SHEETS—SHEET 2.

FIG. 4.



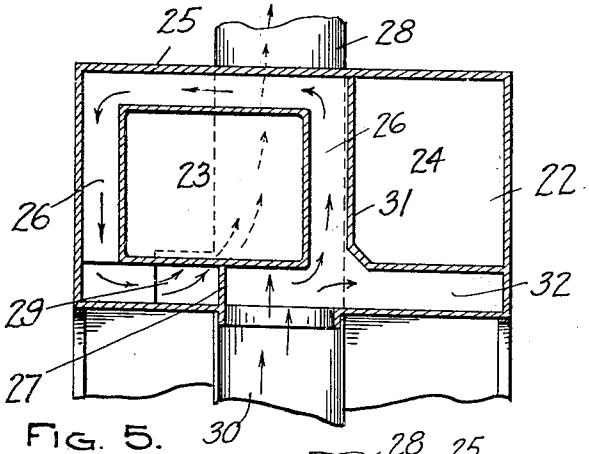


FIG. 5.

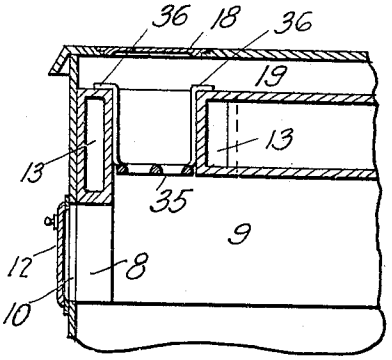


FIG. 6.

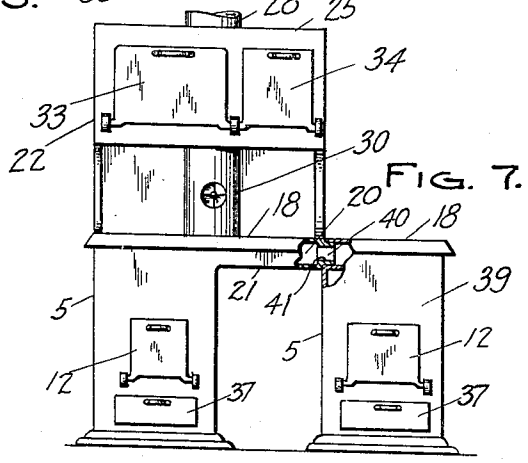


FIG. 7.

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UNITED STATES PATENT OFFICE.

GEORGE J. RYMAL, OF DENVER, COLORADO.

COMBINED KITCHEN-STOVE AND HOT-WATER HEATER.

1,319,969. Specification of Letters Patent. Patented Oct. 28, 1919.

Application filed June 12, 1917. Serial No. 174,204.

To all whom it may concern:

Be it known that I, GEORGE J. RYMAL, a citizen of the United States, and a resident of the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Combined Kitchen-Stoves and Hot-Water Heaters, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which the invention appertains to make and use the same.

My invention relates to improvements in combined kitchen stoves and hot water heaters.

The object of the invention is to provide a stove in which the same heat employed for cooking purposes may be utilized for heating water simultaneously with the process of cooking, and vice versa, thereby effecting an economy in the consumption of fuel.

Another object of the invention is to provide a stove of this class, the particular construction and arrangement of which, conserves the heat and accomplishes a maximum degree of influence for any single or combined purpose desired.

Another object of the invention resides in the particular construction of a stove by reason of which it is possible to embody as a part thereof a water heating unit without bringing about the disadvantage of rendering the stove impractical, or inefficient for any one separate use intended, or to which the same may be put.

Another object of the invention is to provide a construction which embodies such coincident relation between all the elements thereof as to accomplish a maximum degree of efficiency, both in the consumption of fuel and in the conservation and application of heat, of a degree at least equal to that accomplished by a stove employed for any single purpose.

Another object of the invention is to provide means whereby the stove may be employed solely for cooking purposes and to eliminate the performance of the simultaneous function of heating water.

With these and other particular objects in view, all of which can not be specifically alleged without unnecessarily encumbering this specification, the invention will be now described with reference to the accompanying drawings, which form a part hereof.

In these drawings, Figure 1 is a front elevation view of the stove; Fig. 2 is a cross sectional view thereof, taken on the line 2—2 of Fig. 1; Fig. 3 is a perspective view of the water heating unit; Fig. 4 is a horizontal cross sectional view taken on the line 4—4 of Fig. 1; Fig. 5 is a vertical sectional view taken on the line 5—5 of Fig. 2; Fig. 6 is a sectional view, showing the application of a secondary fire pot to the stove, whereby the stove may be employed for the single purpose of cooking; and Fig. 7 is an elevation view, showing the manner of adding other sections to the stove when a relatively large volume of water is to be heated.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Let the No. 5 designate the fire box portion of the stove in its entirety. In this fire box portion is arranged a water circulating unit 6, which forms the vertical walls of the fire box portion of the stove, the same resting at its lower edge upon the fuel grating 7. One extremity of this water circulating unit 6, is provided with a cut-out portion 8, leaving an opening into the combustion chamber 9, formed by the water circulating unit 6. This opening registers with a fuel feed opening 10 in the fire box portion 5, said opening 10 being provided with a door 12. By this arrangement, the fuel may be fed through the opening 10 and the registering opening 8 of the water circulating unit 6, into the combustion chamber 9 of the stove. The walls of the water circulating unit 6 are hollow, as shown at 13, and are in communication with induction and eduction pipes 14 and 15 respectively, which said pipes 14 and 15 lead to radiators, or other suitable heat dispensing means. A transverse hollow partition 16 connects the opposite side walls of the water circulating unit 6, establishing communication between said side walls intermediate the extremities of the latter. Another partition 17 extends at right angles to the partition 16 and connects the latter intermediate its extremities, with one end of the water circulating unit 6, said partition establishing communication between the hollow partition 16 and the body of the circulating unit 6. These partitions 16 and 17 are spaced from the bottom of the combustion chamber 9, permitting of room below said partitions for the combustion of fuel. The fire box portion 5 of the stove is provided with a cover 18, which is

spaced above the upper edge of the water circulating unit 6, leaving a space 19, which said space 19 is in communication with a chamber 20, said chamber 20 being formed by a laterally extended and horizontally disposed portion 21 of the fire box 5 and cover 18.

A baking oven 22, having compartments 23 and 24 therein, is supported above the fire box portion 5 of the stove, said baking oven 22 being supplied with the necessary heat from the combustion chamber 9 through a continuous heat circulating passage. The chamber 23 is entirely surrounded by a jacket 25, which forms a passage 26 around the chamber 23. A partition 27 is positioned in this passage 26, which serves to direct the smoke into a flue 28 after the smoke has first made a complete traverse of the passage 26, the said flue 28 being provided with an opening 29 therein, which is in communication with said passage 26 adjacent said partition 27. A flue 30 leads from the space 19 to the passage 26 and communicates with the latter on one side of the partition 27, which partition directs the heat units, as well as the smoke through the passage 26 in the direction indicated by the arrows. The chamber 24 is subjected to the influence of less heat than the chamber 23, and therefore may be termed a warming oven. This chamber 24 is formed by a partition 31 set in one corner of the jacket 25, the jacket 25 forming a portion of the wall of the chamber 24. A space 32 is left below the chamber 24, which is in communication with the flue 30. These chambers 23 and 24 are adapted to be closed by doors 33 and 34 respectively, which said doors are of ordinary form.

In warm weather, when it is unnecessary to employ the stove for house heating, less fuel will be required, and therefore, the size of the combustion chamber may be greatly reduced. To accomplish this, I provide a grate 35, which is provided with arms 36 that engage with the upper edge of the heating unit 6, whereby the grate 35 is suspended from said heating unit 6 in one end of the latter within the space partitioned off by the partition 16, the partition 16 and the walls of the heating unit 6 forming the walls of the reduced combustion chamber.

A suitable ash drawer 37 is positioned under the grate 7 within the fire box portion 5 of the stove, which drawer may be removed whenever desired for emptying the ashes.

By reason of the particular construction and relation of the various elements between the fire box portion 5 and the baking oven 22, a direct, positive and efficient draft is created and it is made possible to place the said baking oven above the fire box portion 22, which is the only convenient place the same could be put in a stove of this kind, as the entire area of the fire box portion 5 is taken up with the accommodation of the water heating elements.

In use, water is very rapidly heated in the water heating unit 6, causing the same to circulate freely therein and to pass out through the pipe 15 to the radiators, or other heat dispensing units.

In Fig. 7, the manner of attaching one or more stove units is shown. In this view, 39 represents the additional unit. The same is positioned beside the other unit and the unit 39 communicates with the other unit through an opening 40, which communicates with the chamber 20, a sleeve 41 surrounding this opening 40 and adapted to be received into the space 19 of the unit 39.

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

1. The combination of the fire-box and grate of a stove, of a hollow water circulating unit forming the vertical walls of the fire-box, said hollow water circulating unit resting upon the grate of the fire-box, the opposite side walls of the water circulating unit being connected by a transverse hollow member spaced above the grate of the fire-box and forming a relatively small compartment between said transverse hollow member and the forward end of the water circulating unit, and a relatively small auxiliary grate adapted to be supported between said transverse connecting hollow member and said forward end member of the water circulating unit.

2. The combination of the fire-box, and a grate of a stove, of a hollow water circulating unit forming the vertical walls of the fire-box, said water circulating unit having a transverse hollow member connecting two opposite side-walls of the water circulating unit, and a second hollow member connecting said transverse hollow member with one of the end walls of the water circulating unit, said transverse hollow member and said second hollow member being spaced above the grate of the stove, and said members forming relatively small compartments with respect to the area of the fire-box and adapted to receive therein an auxiliary grate.

In testimony whereof, I affix my signature.

GEORGE J. RYMAL.