Dec. 1, 1942. J. A. TEICHMAN 2,303,772

COMBINATION COOKING AND HEATING STOVE

Filed Feb. 25, 1941

Fig. 1.

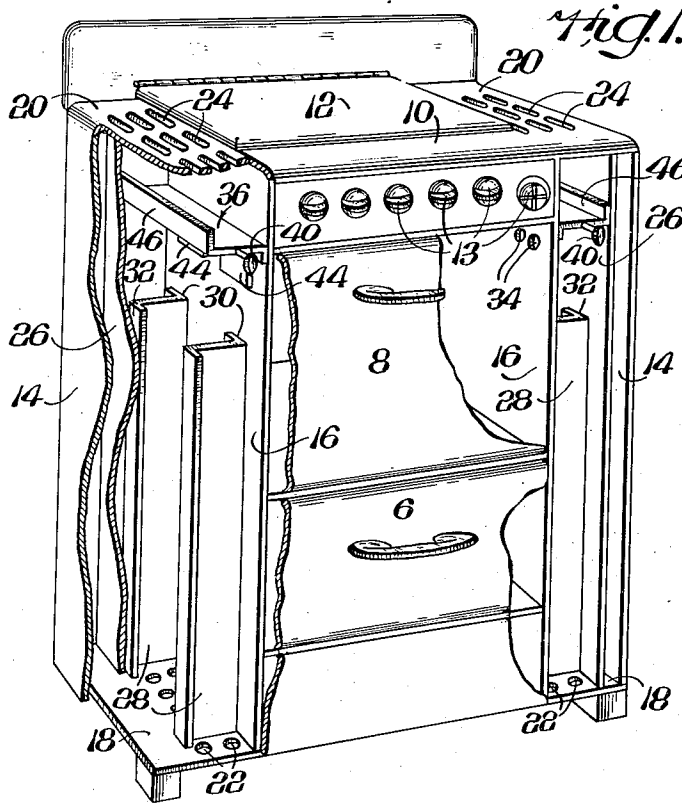


Fig. 2.

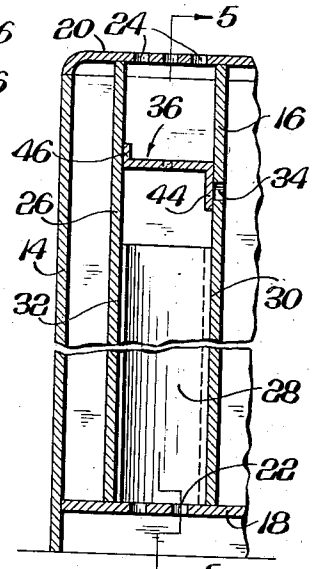


Fig. 3.

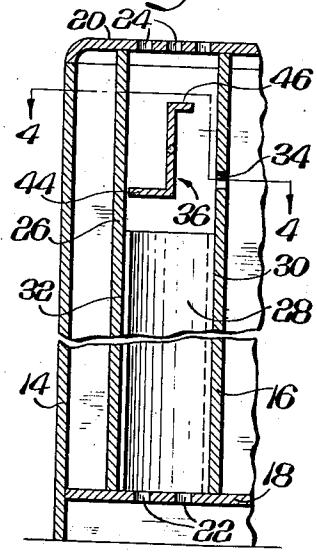


Fig. 4.

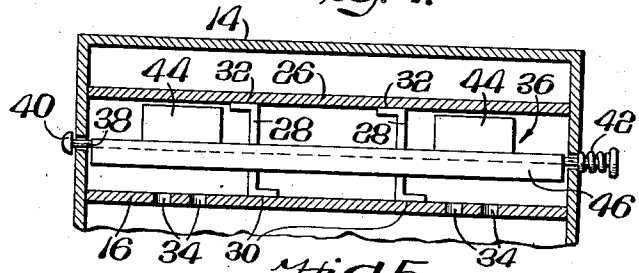
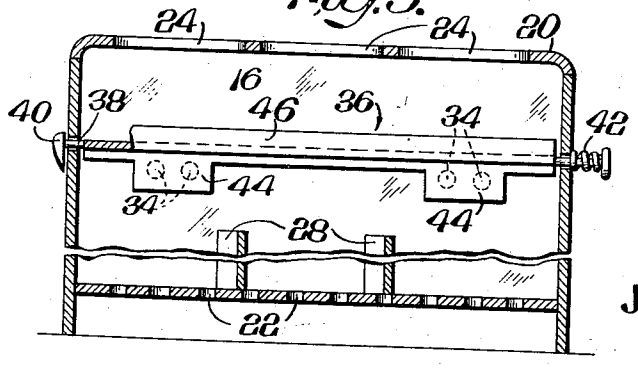


Fig. 5.



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COMBINATION COOKING AND HEATING STOVE

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Application February 25, 1941, Serial No. 380,491

1 Claim. (Cl. 126—4)

My invention relates to a new and useful combination cooking and heating stove.

In certain parts of this country and elsewhere where winter is not very severe and hence houses are not provided with central heating plants, it becomes necessary at certain times to utilize some sort of heating arrangement and, to this end, it has been proposed to provide a coal range or gas stove with auxiliary solid or liquid combustion chambers, or auxiliary gas burners, together with ducts for heating air and discharging it into the room. Certain of the constructions heretofore known and used have been fairly satisfactory but I have also found that in all instances, either the construction of the stove or range itself was materially interfered with and its utility reduced, or the expense of manufacture and installation was unduly great.

It is therefore the object of my invention to provide a gas stove of this character which can be used for cooking or for room heating without the necessity of auxiliary or additional burners and without in any way interfering with the normally approved construction and operation of the standard conventional stove.

The construction and advantage of my novel cooking and heating stove will be more clearly understood from the following specification and the accompanying drawing in which:

Fig. 1 represents a perspective view of a combination cooking and heating stove embodying my invention, certain parts being eliminated and others being broken away to show details of construction.

Fig. 2 represents a fragmentary, vertical cross section through the left hand end of Fig. 1 showing certain details of construction and showing the stove as it would be used for cooking.

Fig. 3 represents a view similar to Fig. 2 showing the stove as it would be used for room heating.

Fig. 4 represents a section on line 4—4 of Fig. 3.

Fig. 5 represents a section on line 5—5 of Fig. 2, certain parts being shown in elevation.

Referring to the drawing in which like reference characters indicate like parts, I utilize a conventional stove which is provided with the broiler compartment 6, the oven compartment 8 and the cooking top 10 having the usual number of gas burners (not shown). When not in use, the gas burners are covered by the lid 12. The broiler compartment 6 is provided with the usual conventional burner (not shown) and the products of combustion from this burner are exhausted through the back wall of the stove, also in the usual manner which is well known in the art and which also need not be shown. 13 designates the usual valve handles for regulating the supply of gas to the broiler 6, oven 8 and the gas burners under the lid 12 in the usual manner. A stove of this character is normally provided with insulation which may take the form of packing or which may be in the form of an air space provided between the outer walls of the broiler and oven and the outer shell of the stove. As here shown, the outer wall 14 is normally separated from the inner broiler and oven wall 16 by a space equal to the width of the bottom and top frame members 18 and 20. This space in actual commercial construction is about four inches more or less. Normally the compartment formed by the bottom frame member 18, the inner wall 16, the outer wall 14 and the top wall 20 is closed tight so as to form an insulating air pocket, or, if desired, this compartment can be filled with an insulating material such as asbestos or the like. The stove thus far described is completely conventional.

In order to render the conventional gas stove thus far described useful, not only for cooking but also for room heating, and in order to do so with the minimum interference with the structure or appearance of the conventional stove and at minimum cost, I provide the bottom plate 18 with the openings 22 and the top plate 20 with the openings 24, the latter being in the form of an ornamental grill so as to present an attractive appearance. In order to preserve the necessary measure of insulation which is desirable whether the range is being used for cooking or for heating or for both, I provide the false partition 26 which is slightly spaced inwardly from the outer wall or shell 14 as clearly illustrated. The space between the false partition 26 and the outer wall 14 is sealed so as to constitute a dead air space insulation. Intermediate the false partition 26 and the wall 16, common to the broiler 6 and oven 8, I position the conductor elements 28 which are secured along their vertical edges 30 to the wall 16. The conductor elements 28 are in the nature of radiating fins for conducting heat by contact with the wall 16 and dissipating the heat in the path of the air passing upwardly from the openings 22 towards the openings 24. While I have shown two such conductor elements, and while they have been shown in the form of a Z-shape, it is obvious that the number, shape, or size, of these conductors can be varied at will. The opposite edges 32 of the conducting mem-

bers 28 may abut against or be secured to the inner surface of the false partition 26. If desired, I punch a series of holes 34 in the wall of the oven compartment 8 so that the air heated inside of the oven 8 may emerge through the openings 34 for ultimate discharge upwardly through the openings 24. 36 designates a damper carried by the shaft 38 and manipulated by the knob or handle 40 projecting through the front of the range. At the back wall of the range I have provided the spring 42 for tensioning the damper and retaining it in any position to which it is adjusted. The damper 36 is provided with the tabs or extensions 44 which register with and hence are adapted to close the openings 34 in the walls of the oven 8, the other edge of the damper 36 being provided with a deflected portion 46 which, when the damper is in closing position, abuts against the false partition 26. It will be noted that the damper 36 is provided with two extensions 44 and therefore the openings 34 in the wall of the oven 8 will be spaced so as to be completely covered by the spaced tabs 44 of the damper.

The operation is as follows:

If the stove is to be used for cooking only, the damper 36 is adjusted to the position shown in Figs. 1 and 2 in which, first, the openings 34 in the wall of the oven 8 are completely closed, and second, the compartment formed by the base 18, the top 20, wall 16 and the false partition 26, is completely closed at a point above the edge of the conducting members 28 (see Fig. 2), thereby interrupting the circulation of air, and the chamber formed between the damper 36, the walls 14 and 26 and the bottom 18 now becomes a dead air pocket serving as insulation. In this position, as soon as the air above the damper 36 has been heated and irradiated and hence escaped into the room, there will be no further positive heat emanation through the room. When it is desired to use the stove for heating, the damper 36 is moved to the position shown in Fig. 3 in which first, the openings 34 are no longer closed by the tabs 44, and second, with the damper 36 in the position shown in Fig. 3 there is free circulation upwardly and between the walls 16 and 26 since the cold air will rise through the openings 22 to come into contact with the heated walls 16, conducting elements 28, etc., and rise into the room through the grill 24. In this case, as well as when the stove is used for cooking, a space between the outer wall 14 and the false partition 26 will afford constant insulation. If the cooking does not require the entire "B. t. u." capacity of the oven, it is possible to use the stove for cooking and room heating at the same time.

It will thus be seen that unlike prior art devices I have introduced no new or auxiliary gas burners, but instead I utilize the conventional burner which is now provided in the broiler compartment of the standard oven of this type. Also it will be seen that I have not provided any complicated or tortuous ducts or flues, either for air circulation or for exhaust of the auxiliary burner, but that I have utilized the dead air space heretofore provided in stoves of this character between the inner wall 16 and the outer wall 14, and by means of the openings 22 and 24 and the damper 36 I am enabled to retain the insulating character of the dead air space referred to or to utilize that space for room heating by circulation of air. A commercial stove embodying this invention has been built and I have found by actual test that it operates satisfactorily, that the cost of making and installing the parts mentioned is very nominal, that there are no parts to get out of order or which are subject to wear and tear, and that the overall dimensions of the stove are not in any way altered.

With respect to the damper 36, which is now shown as being pivotal and provided with two spaced tabs 44 which are adapted to cover corresponding pairs of openings 34 in the wall of the oven 8, it is pointed out that the function of the damper is simply to close the space below the grill 24 and, if any openings are provided in the wall of the oven, to close those openings also. Therefore I am not limited to a pivotally mounted damper nor to a damper having two spaced extensions 44, this form of damper being shown by way of illustration and not by way of limitation. The same applies to the heat conducting elements 28 which, as above mentioned, may be varied in any desired number of ways to the end that maximum heat conduction from the walls 16 of the broiler and the oven is obtained.

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

A combination cooking and heating stove comprising a cooking chamber, a compartment abutting against a wall of said cooking chamber, there being openings in the bottom and top of said compartment whereby air circulates upwardly through said compartment and in contact with said wall of said cooking chamber, there also being openings in said wall of said cooking chamber leading to said compartment, and a damper mounted in said compartment for closing said last mentioned openings and simultaneously preventing circulation of air through said compartment at will.

JACOB A. TEICHMAN.