May 21, 1940. L. O. MORIN. JR., ET AL 2,201,913

HEAT CONTROL FOR OIL STOVES

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Fig. 2.

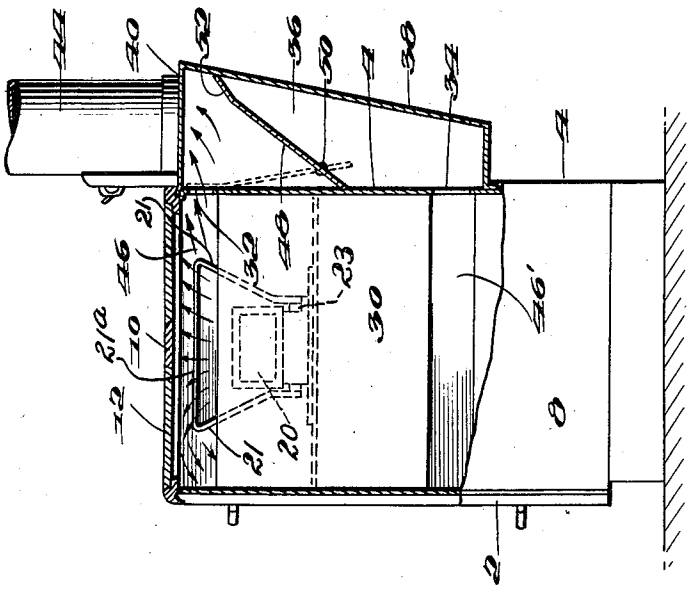
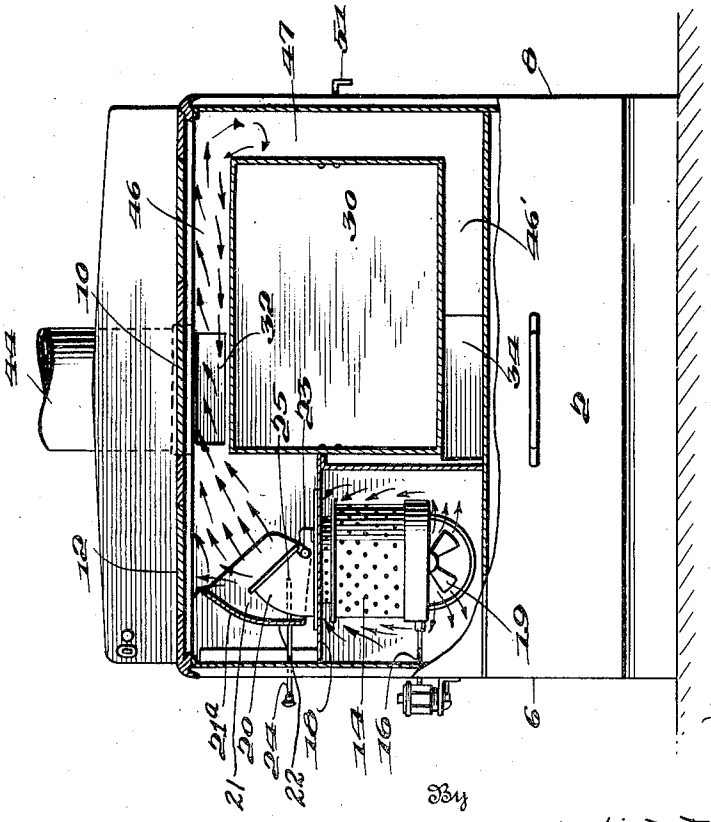


Fig. 1.



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HEAT CONTROL FOR OIL STOVES

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Fig. 4.

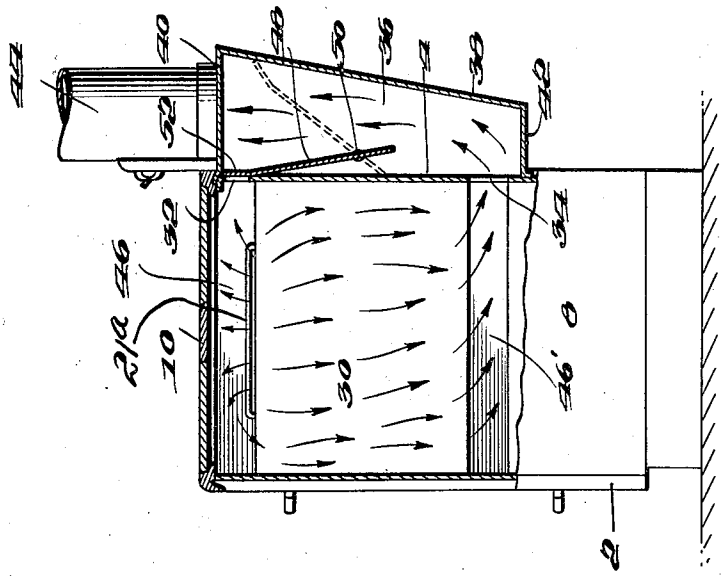
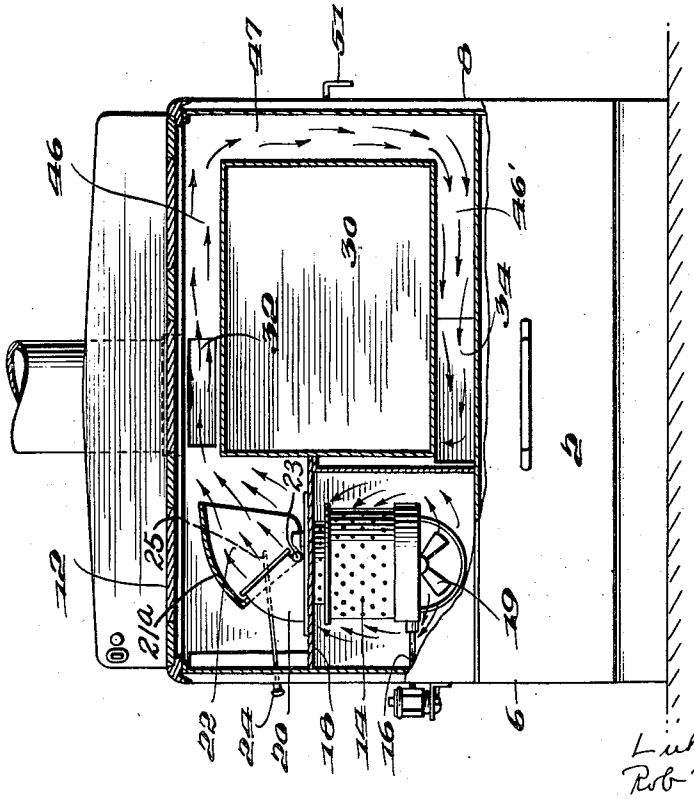


Fig. 3.



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HEAT CONTROL FOR OIL STOVES

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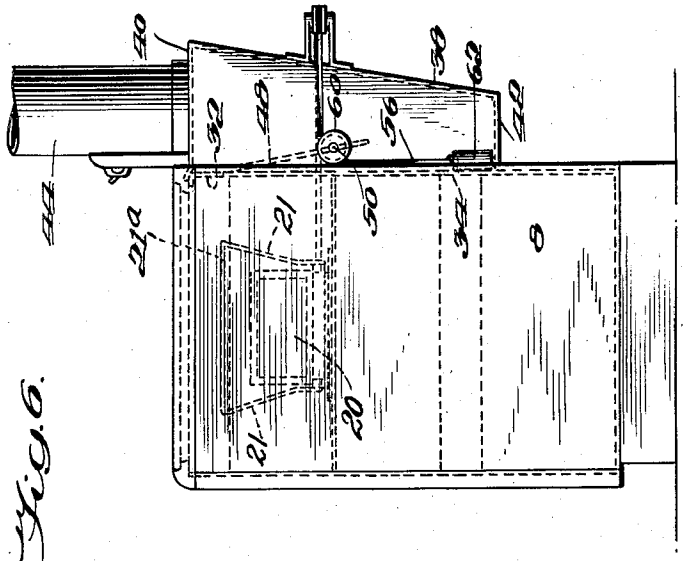


Fig. 6.

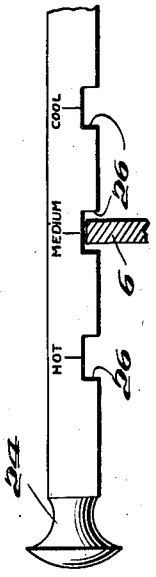


Fig. 7.

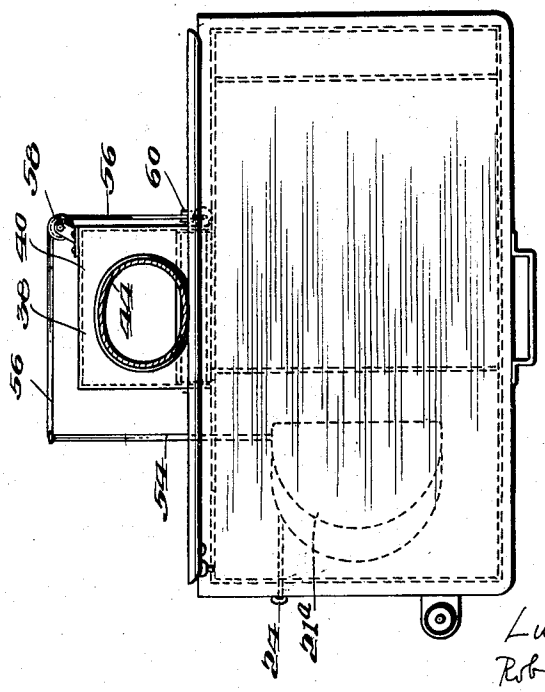


Fig. 5.

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Fig. 8.

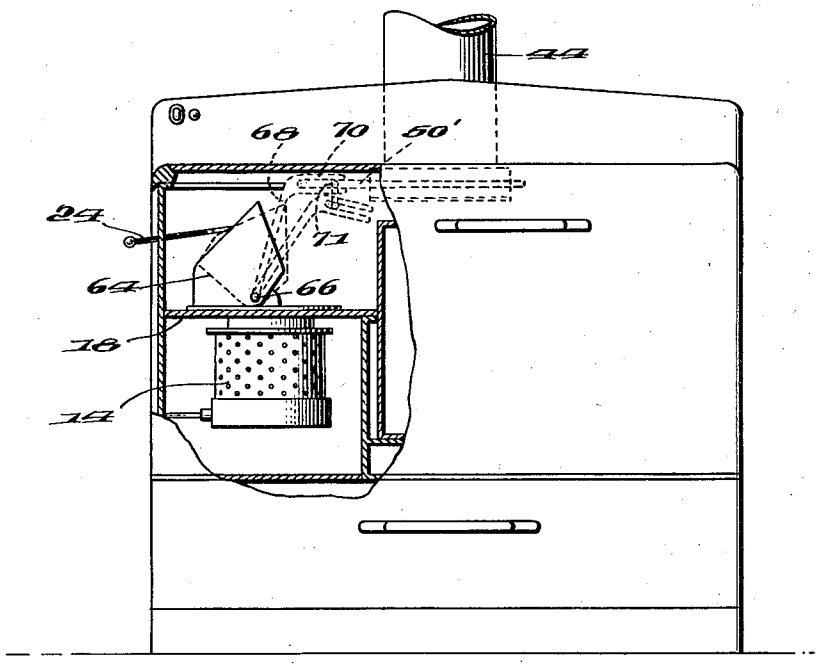
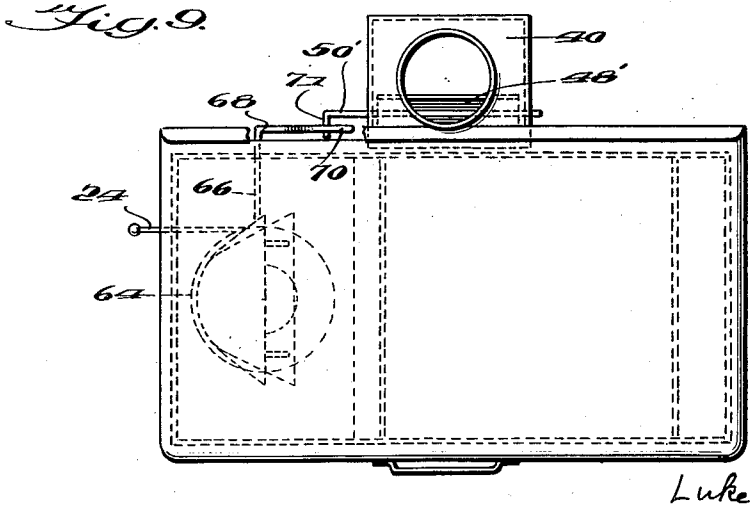


Fig. 9.



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Patented May 21, 1940 2,201,913

UNITED STATES PATENT OFFICE

2,201,913

HEAT CONTROL FOR OIL STOVES

Luke Octave Morin, Jr., and Rob Roy Shelton, Chattanooga, Tenn., assignors, by mesne assignments, to Hamilton National Bank of Chattanooga, Chattanooga, Tenn., a corporation

Application June 17, 1938, Serial No. 214,330

13 Claims. (Cl. 126—44)

This invention relates to oil stoves and particularly to flame directing means and oven temperature control for such oil stoves.

The principal objects of the invention are:

1. To provide an improved flame director for an oil stove, for directing more or less heat to and around the oven or more or less heat to the cooking top, as desired.

2. To provide an improved temperature control for the oven, whereby the hot gases are directed into greater or less heating relationship with the oven for controlling the temperature of the oven.

3. To provide an improved damper arrangement for directing the hot gases through either of two flue openings positioned at different points adjacent the oven for controlling the oven temperature.

4. To provide means interconnecting the flame director and the damper for the control of the oven temperature so that these two cooperating devices are moved simultaneously in the proper manner for controlling the cooking top and oven temperatures.

More specifically, the invention comprises a flame director which is preferably pivoted on a substantially horizontal axis for allowing the flame issuing upwardly from the burner to pass to the cooking top of the stove, or for directing this flame toward the oven. Cooperating with this movable deflector there may be provided a fixed, slightly curved flame deflector positioned at one side and bordering the upper part of the burner.

Located adjacent the oven and preferably just above and just below the oven are a pair of flue openings which open into a relatively large flue space adjacent the oven, at one side of the stove. Positioned in this flue space is a damper, which cooperates with these two flue openings for causing the gases to pass through either the upper or the lower of said openings or for causing the gases to divide and to pass in any desired ratio through the two flue openings to said flue space. This arrangement permits a fairly wide control of oven temperature.

The main features of the invention having been thus indicated, further advantages of construction and operation will be apparent from the accompanying drawings which illustrate the present preferred embodiments of the invention. In these drawings:

Figure 1 is a vertical, sectional view of an oil stove embodying the present invention;

Figure 2 is a vertical, sectional view at right angles to Figure 1;

Figures 3 and 4 are views, respectively similar to Figures 1 and 2, showing certain parts in different positions;

Figure 5 is a plan view showing a modification;

Figure 6 is a side view of Figure 5;

Figure 7 is an enlarged view of a detail.

Figure 8 is a sectional view; and

Figure 9 is a plan view showing a modification.

Referring now to these drawings, in which similar reference characters indicate similar parts, the stove comprises front and back walls 2 and 4 and end walls 6 and 8. The top, indicated generally at 10, is provided with a cooking area 12.

Positioned within the stove is an oil burner 14 of any desired design, preferably a burner of the pot type such, for example, as illustrated in our patent dated May 3, 1938, No. 2,116,278. This burner is provided with an oil feed pipe 16 and suitable support 18. A fan 19 of any suitable type gives an increase of draft.

Bordering the upper part of the burner, at one side thereof, there is a hooded fixed flame director or deflector 20, slightly curved as indicated. Cooperating with this fixed flame director is a curved hooded flame director or deflector 22, pivoted to swing into the path of the issuing flame for directing it more or less laterally. The director 22 may conveniently be pivoted on the axis 23, which is at about the middle top portion of the burner. The hooded flame director 22 is shaped about like an inverted U, comprising side walls 21 connected by a top wall 21a. It is positioned at one side of the burner so as to swing practically clear of the path of the upwardly traveling gases, as shown in Fig. 1.

In order to move the pivoted flame deflector 22 about its axis to any desired adjusted position, there is provided an operating handle 24, which pivotally engages one or both sides of the deflector 22 at 25. One edge of the handle may be notched, as at 26, for engaging with an edge of the wall 6, for holding the handle in desired adjusted position.

When the deflector 22 is in the position shown in Figure 1, the flame from the burner will be effective in heating the cooking area 12. When, however, it is desired to heat the oven, the deflector is moved to the position shown in Figure 3, where the gases are deflected laterally toward the oven 30. Flue openings 32 and 34 are provided above and below the oven, both of these flue openings opening into a relatively large flue

space 36 at one side of the stove, defined by the substantially vertical walls 4 and 38 and by upper and lower walls 40 and 42. A smoke pipe 44 carries off the gases from the flue space 36. The oven is positioned within the stove proper so as to leave horizontal passages 46 and 46' and vertical passage 47 around it.

A damper 48 pivoted on an operating axis 50 is positioned within the flue space 36. This damper is of sufficient size to close the flue space. This damper is provided with an upper end portion 52 which, when the damper is moved to the full line position shown in Figure 4, will close the flue opening 32. In this position it is evident that all of the hot gases will pass through the passages 46, 47 and 46' around and underneath the oven, and out through the flue passage 34 into the flue space 36, thereby giving the maximum heat to the oven. If, however, the damper is in the full line position shown in Figure 2, the hot gases are blocked off from passage 34 and they all pass through the passage 32 directly to the smoke pipe 44, thereby heating the oven very little. It is evident that when the damper is set at various positions intermediate the full and dotted line positions of Figure 2, the hot gases will divide, some going out opening 32, and the rest through opening 34, in a proportion dependent upon the setting of the damper 48. The shaft 50 may be provided with an operating handle 51 for setting and holding the damper 48 in any desired position. Friction may be relied on to hold the damper in adjusted position, or any of the usual types of notched racks or the like could be used for that purpose.

The flame deflector 22 and the damper 48 may be interconnected so as to operate in a particular relationship for heating the cooking top 12 or the oven, as the case may be. The flame director 22 and the damper 48 are, therefore, interconnected for simultaneous operation so that as more and more flame is deflected toward the oven, by the deflector 22, the damper 48 will gradually close the upper flue opening 32 and cause more and more gas to pass around the oven, and out through the opening 34, thereby giving successively higher oven temperatures.

One way of interconnecting these members for simultaneous operation is shown in Figures 5 and 6. The pivoted flame deflector 25 is provided with a rigidly mounted, outwardly extending arm 54, to the outer end of which is attached a cable 56 which is guided around a pulley 58, mounted on the wall 38, the cable then passing around a wheel 60 rigidly secured to the operating shaft 50 of the damper 48. To the lower end of the cable 56 is attached a weight 62. When the handle 24 is moved to the right, to move the flame deflector to the position shown in Figure 3, the arm 54 is also moved to the right, which slacks up on the cable 56, whereupon the weight 62 and cable 56 rotate the shaft 50 counter-clockwise, Figure 6, to move the damper toward the position shown in full lines in Figure 4, namely, where the upper flue opening 32 is closed. It is evident that as the handle 24 is gradually moved to the right to throw more and more flame toward the oven, the damper 48 will be moved gradually counter-clockwise to cause more and more gas to pass around the oven to heat it more and more, until when the handle is all the way to the right, opening 32 is closed and all the gas is passing around the oven, as shown in Figure 4. When the handle is farthest to the right, and all the hot gas is passing around the oven, this evidently would correspond to a hot oven, and the corresponding notch 26, Figure 7, of the handle 24, which engages over the edge 6 when the handle is in this position, would be suitably marked, while the intermediate notch corresponding to the the medium temperature would be so marked, while the right-hand notch, corresponding to a relatively cool oven, would be so marked, all as indicated in Figure 7. As many of these notches 26, corresponding to various oven temperatures, could be provided, as desired. While one possible way of interconnecting the flame deflector 25 and the damper 48 for simultaneous operation has been illustrated, it is evident that such mechanical interconnection could readily be accomplished in other ways, as apparent to those skilled in the art.

Another way of interconnecting the flame deflector and the damper for simultaneous operation is shown in Figures 8 and 9. In these figures, the flame deflector 64, corresponding to the deflector 22 of Figure 1, is pivoted on the rod or axis 66, which projects out through the side of the stove and is provided with an extension 68 extending angularly and upwardly, this extension terminating in a fork 70.

The damper 48', corresponding to the damper 48, has its axis 50' extended outwardly at one side of its casing, this axis being provided with an angular extension 71 which fits loosely into the forked member 70. In operation, when the flame deflector 64 is rocked to the right on its axis by the handle 24, the rod 66 turns, causing arms 68 and fork 70 to swing downwardly. This turns the damper axis 50' and moves the damper 48' toward the full line position shown in Figure 4, so that as more and more flame is laterally directed by movement of the deflector 64, the damper 48' is gradually closed, causing more and more flame to pass around the oven, thereby giving a gradual increase in oven temperature.

While the present preferred embodiments of the invention have been described in some detail, it should be understood that the invention is not to be limited to such details but may be carried out in other ways.

We claim as our invention:

1. A stove comprising in combination an oil burner, a cooking top above said burner, an oven, and a flame director having substantially vertical side walls and a connecting top wall, pivoted to swing substantially clear of the flame issuing from the top of the burner for allowing the flame to heat the cooking top, and to swing over the top of the burner for directing the flame therefrom toward the oven.

2. A stove comprising in combination an oil burner, a cooking top above said burner, an oven, and a hood having substantially the shape of an inverted U, pivoted on a horizontal axis to swing substantially clear of the flame issuing from the top of the burner for allowing the flame to heat the cooking top, and to swing over the top of the burner for directing the flame therefrom toward the oven.

3. A stove comprising in combination an oil burner, a cooking top above said burner, an oven, and a flame director having substantially the shape of an inverted U, pivoted on a horizontal axis at the middle, top part of the burner, to swing substantially clear of the flame issuing from the top of the burner for allowing the flame to heat the cooking top, and to swing over the

top of the burner for directing the flame therefrom toward the oven.

4. A stove comprising in combination an oil burner, a cooking top above said burner, an oven, and a hood having substantially vertical side walls and a connecting top wall, pivoted on a horizontal axis at the middle, top part of the burner to swing substantially clear of the flame issuing from the top of the burner for allowing the flame to heat the cooking top, and to swing over the top of the burner for directing the flame therefrom toward the oven.

5. A stove comprising in combination an oil burner, a cooking top above said burner, an oven, a fixed, slightly curved flame director bordering the upper part of the burner, and a movable flame director, cooperating with said fixed flame director, movable into and out of the path of the upwardly issuing flame, for directing said flame laterally toward the oven.

6. A stove comprising in combination an oil burner, a cooking top above said burner, an oven, a fixed, slightly curved flame director bordering the upper part of the burner, and positioned at one side thereof, and a curved hood cooperating with said fixed flame director, and movable into and out of the path of the upwardly moving flame, for directing said flame laterally toward the oven.

7. A stove comprising in combination an oil burner, a cooking top above said burner, an oven, a fixed, slightly curved flame director bordering the upper part of the burner, and positioned at one side thereof, a curved hood cooperating with said fixed flame director, and movable into and out of the path of the upwardly moving flame, for directing said flame laterally toward the oven and interengaging means carried by the fixed flame director and the curved hood, for limiting the movement of said hood.

8. A stove comprising in combination an oil burner, an oven, flue openings adjacent said oven, a movable flame director for directing hot gases toward the oven, and a variably positionable damper cooperating with said flue openings, for directing the hot gases through one or the other of said flue openings.

9. A stove comprising in combination an oil burner, an oven, flue openings adjacent said oven, a movable flame director for directing hot gases toward the oven, and a variably positionable damper cooperating with said flue openings, for directing the hot gases through one or the other of said flue openings or through said flue openings simultaneously, in any desired relative amounts.

10. A stove comprising in combination an oil burner, an oven, flue openings adjacent said oven, a movable flame director for directing hot gases toward the oven, a variable positionable damper cooperating with said flue openings, for directing the hot gases through one or the other of said flue openings and means for operating the flame director and said damper simultaneously.

11. A stove comprising in combination an oil burner, an oven, flue openings adjacent said oven, a movable flame director for directing hot gases toward the oven, a variably positionable damper cooperating with said flue openings, for directing the hot gases through one or the other of said flue openings and means interconnecting the movable flame director and the variably positionable damper, for operating them simultaneously for controlling the oven temperature.

12. A stove comprising in combination an oil burner, an open means defining a relatively large flue space adjacent the oven, two flue openings located respectively adjacent upper and lower parts of the oven, said flue openings opening into said flue space, a variably positionable damper located in said flue space, for causing the gases to enter said flue space through one or the other of said flue openings, a movable flame director for directing hot gases toward the oven, and means interconnecting the damper and the flame director for operating them simultaneously.

13. In an oil stove, in combination, an oven, an oil burner near one side of the oven, a cooking top above the oil burner, a flame deflecting hood, pivoted to rock back and forth, toward and away from the oven, into and out of the path of flame issuing from the oil burner, said hood comprising substantially vertical side walls and a connecting top wall, and means engageable with said hood for moving it back and forth about its pivot.

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CERTIFICATE OF CORRECTION.

Patent No. 2,201,913. May 21, 1940.

LUKE OCTAVE MORIN, JR., ET AL.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, second column, line 28, claim 12, for "open means" read --oven, means--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of June, A. D. 1940.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.