Dec. 23, 1952 E. S. POLLOCK 2,622,582

VENTILATING AND COOLING MEANS FOR COOKING RANGES

Filed April 12, 1949 3 Sheets-Sheet 1

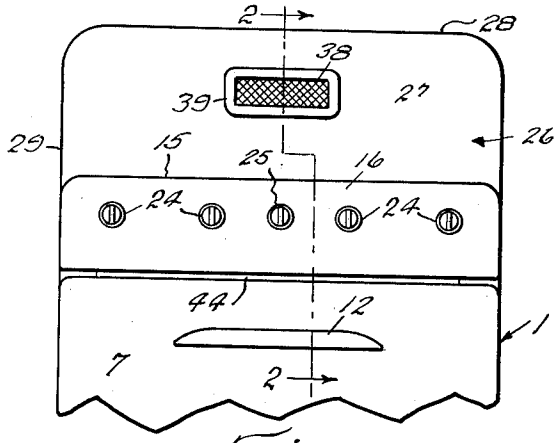


Fig. 1

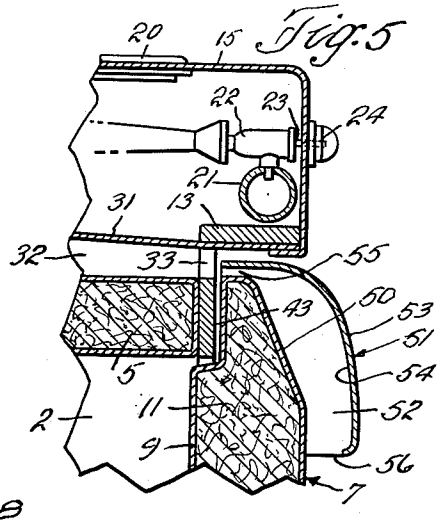


Fig. 5

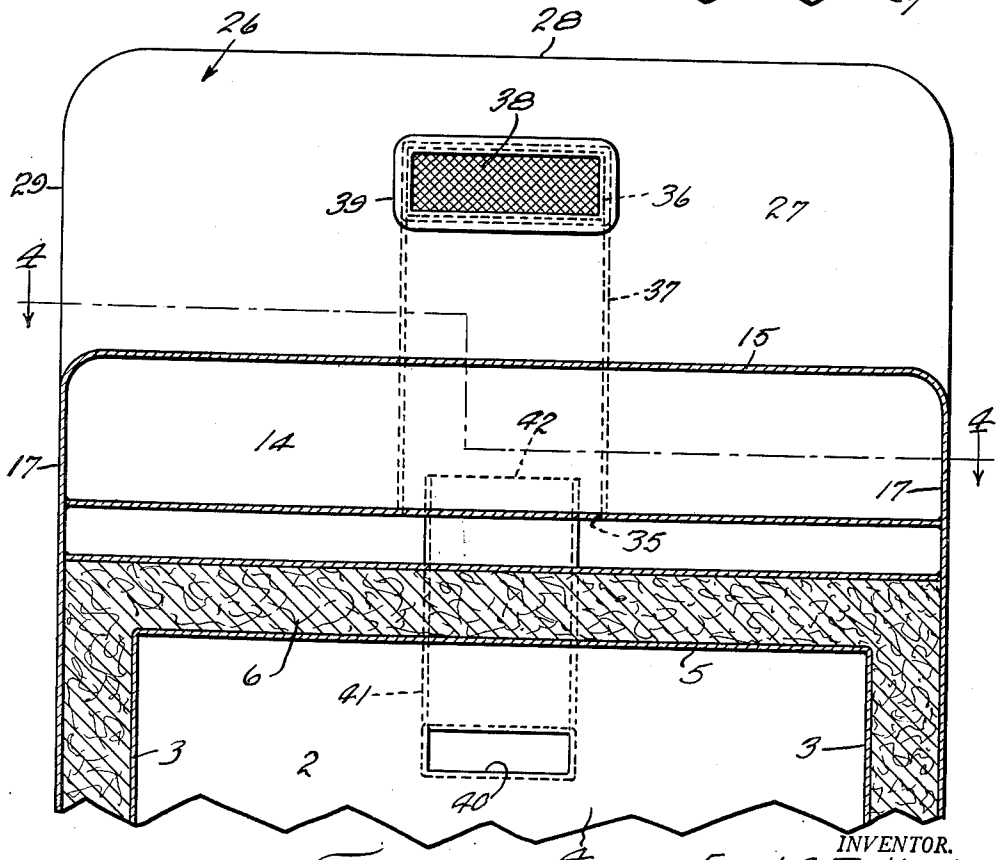


Fig. 3

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VENTILATING AND COOLING MEANS FOR COOKING RANGES

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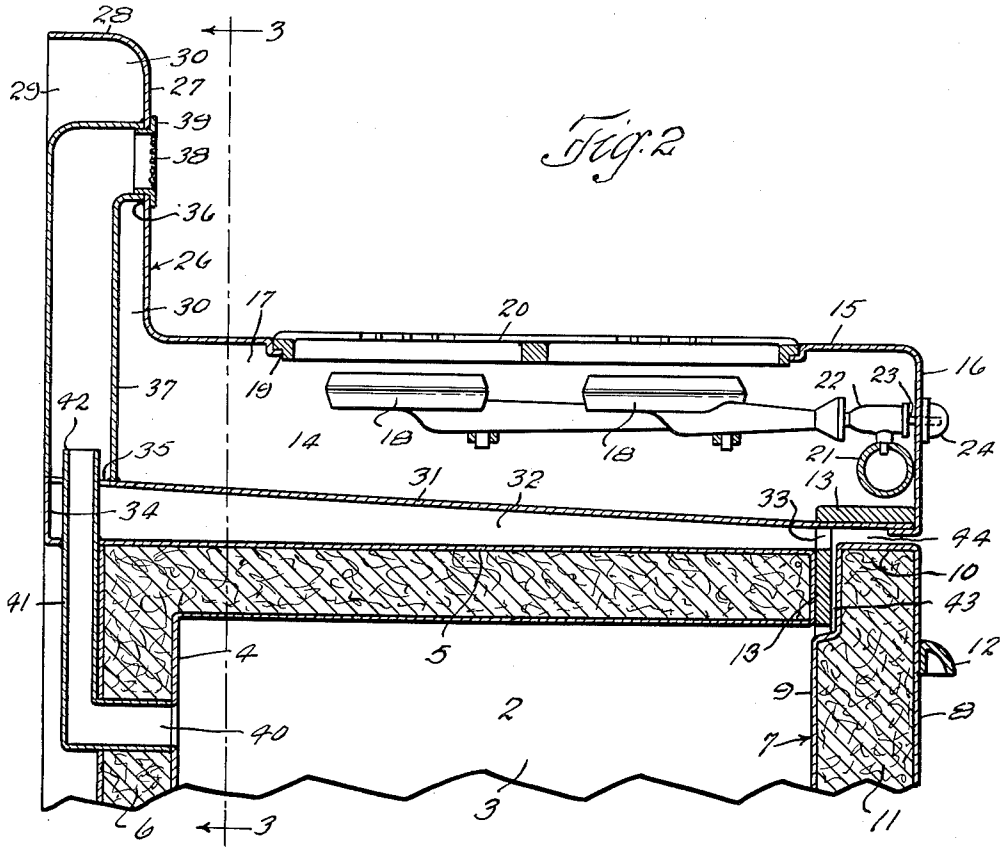


Fig. 2

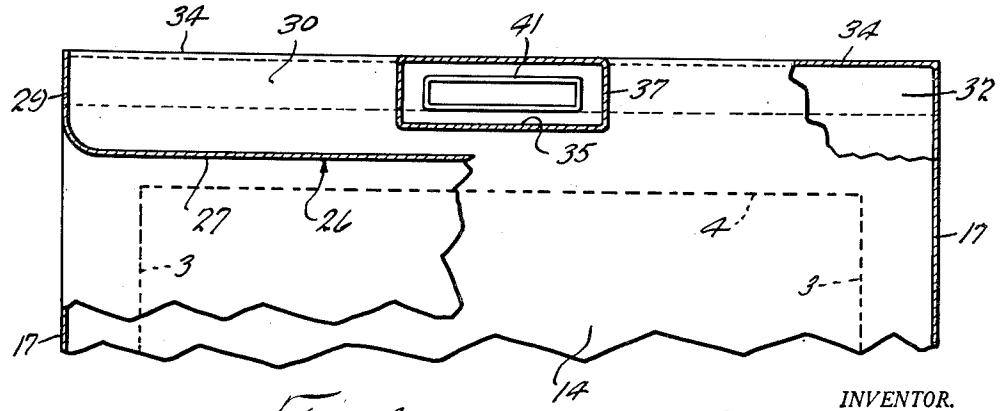


Fig. 4

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VENTILATING AND COOLING MEANS FOR COOKING RANGES

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Fig. 6

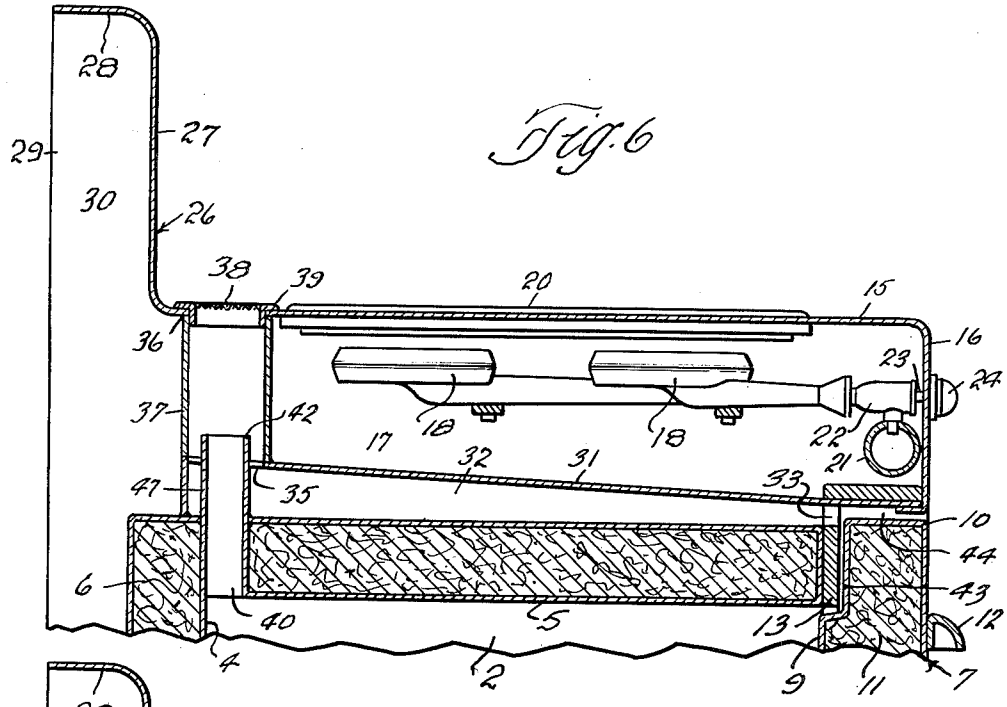
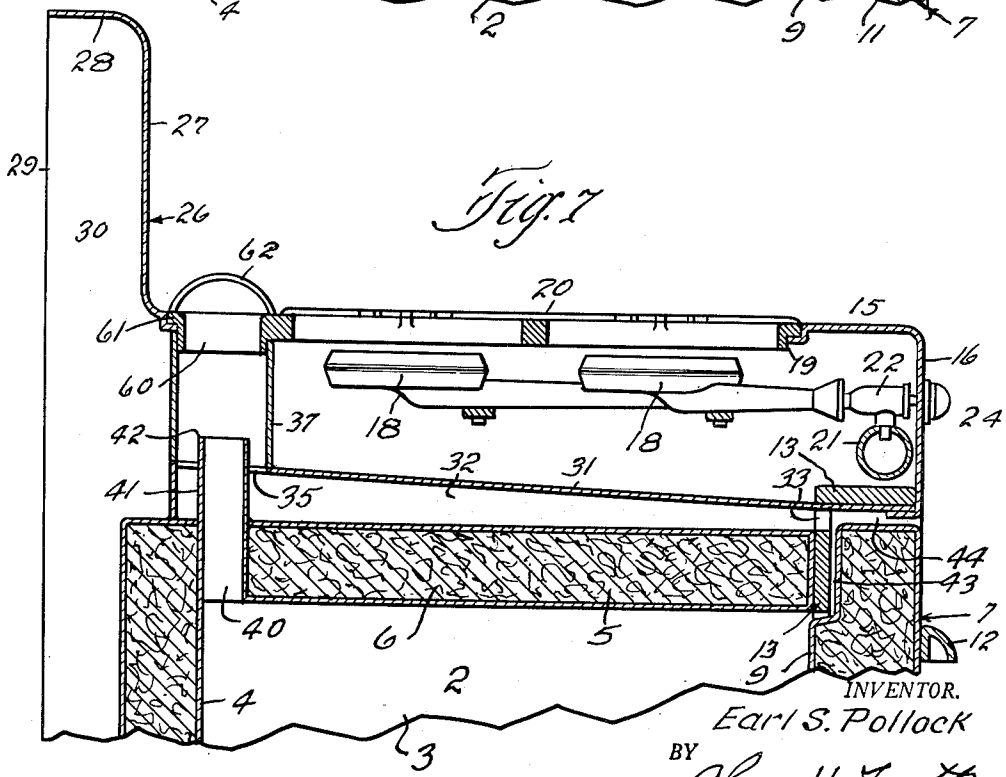


Fig. 7



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UNITED STATES PATENT OFFICE

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VENTILATING AND COOLING MEANS FOR COOKING RANGES

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Application April 12, 1949, Serial No. 86,943

6 Claims. (Cl. 126—21)

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This invention relates to a ventilating and cooling means for cooking ranges. It is especially adapted for small utility ranges such as are extensively used today in small apartment kitchenettes and in-a-door cooking cupboards provided in many hotel one and two-room suites.

These utility ranges usually comprise an oven which extends from side to side and from the front to the rear of the range, and a plurality of top burners which are disposed in a chamber between the top of the oven and the top of the stove. The control valves for the burners are disposed within the top burner compartment and the valve stems thereof extend through a front panel which constitutes the front wall of the top burner compartment and extends across the front of the range directly above the oven door. An operating handle is secured to the projecting end of each of the valve stems.

It has been found by experience that no matter how well a range is constructed a certain amount of heat will escape from the oven around the edges of the oven door. Most of this heat leaks out over the top of the door and flows up along the front panel and around the valve operating handles. This escaping heat is sufficient to eventually heat the operating handles to such a degree that they cannot be grasped by the bare hand without danger of burning. Also this escaping heat is very objectionable to a person standing close to the stove while tending to something cooking on the top burners of the stove.

It is the principal object of my invention to eliminate this flow of heat escaping upwardly along the front panel and around the valve operating handles. Since it is impracticable, if not impossible, to make the oven door fit so tightly when closed that heat cannot leak out over the top thereof, I provide means to direct the escaping heat away from the front panel of the stove and discharge it elsewhere, preferably through the oven venting means.

Another object of the invention is to provide a very simple and effective means, for accomplishing the aforesaid object, which can be incorporated in a range without materially altering the construction thereof.

Other and more specific objects of the invention will be apparent from the following specification and the accompanying drawing forming a part thereof wherein:

Fig. 1 is a front elevation of the upper part of a small utility type cooking range having my invention incorporated therein;

Fig. 2 is an enlarged vertical sectional view taken from the front to the rear of the range,

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the plane of the section being indicated by the line 2—2 of Fig. 1;

Fig. 3 is a vertical sectional view taken from side to side of the range, the plane of the section being indicated by the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary horizontal sectional view taken on the line 4—4 of Fig. 3;

Fig. 5 is a fragmentary view similar to Fig. 2 showing a slightly modified form of my invention;

Fig. 6 is a vertical sectional view, similar to Fig. 2, showing a modified form of my invention in which the discharge conduit communicates with an opening in the top of the range instead of in the splash back; and

Fig. 7 is a vertical sectional view similar to Fig. 6 showing another modified form of my invention in which the discharge conduit communicates with a complementary opening through a top burner grate.

Referring now to the drawings by reference characters, the numeral 1 indicates generally a utility type cooking range having an oven 2 which extends from the front to the rear of the range and from side to side thereof. The side walls 3, the rear wall 4 and the top wall 5 of the oven are all insulated and each comprises spaced inner and outer metal sheets with the space therebetween filled with suitable insulating material 6. The front of the oven is normally closed by a door 7 which is swingingly connected to the frame of the range by hinges (not shown) disposed at either the bottom or at one side thereof, preferably at the bottom of the door so that the door when open will swing downwardly. The door 7 comprises spaced front and rear walls 8 and 9 and a peripheral wall 10, all formed from sheet metal. The enclosed space is also filled with suitable insulating material 11. The door is adapted to be opened and closed through the medium of a handle 12. The top and side walls of the oven are secured to and extend rearwardly from the frame 13 of the range.

A top burner chamber 14 is provided between the top wall 5 of the oven 2, and the top 15 of the stove. The chamber 14 is open at the rear thereof and is closed at the front by the panel 16 and at the sides by the walls 17. A plurality of burners 18, preferably four in number, are suitably mounted in the chamber 14 beneath openings 19 in the top of the range. Suitable grates 20 are arranged over the opening 19. An oven burner (not shown) is mounted beneath the oven 2. Gas is supplied to all burners from a manifold 21 which extends across the chamber 14, just behind the front panel 16. The supply of gas to all burners is regulated by valves 22 which are dis-

posed within the chamber 14, there being a separate valve for each burner. Each of the valves 22 has a valve stem 23 which extends out through the front panel 16. An operating handle is secured to the projecting end of each of the valve stems 23. The handle for the top burner control valves are indicated by 24, and the handle for the oven burner control valve is indicated by 25. A splash back 26 is formed integral with and extends upwardly from the top 15 of the range at the rear thereof across the range from side to side thereof. The splash back 26 consists of the front wall 27, the top wall 28, and the side walls 29. The front wall 27 is disposed a short distance forwardly of the rear of the range, thus providing a closed chamber 30 when the rear of the range is flush against a room wall.

Within the chamber 14 spaced from the top of the oven wall 5 I provide a partition 31 which extends from the front panel 16 to the rear plane of the range, and from side wall 17 to side wall 17. This partition slopes upwardly, as shown in Fig. 2, from the front to the rear of the range and provides a chamber 32 which is open across the front thereof as indicated at 33. The rear end of the chamber 32 is closed by a plate 34 which extends across the back of the range from side wall 17 to side wall 17. Adjacent the rear end of the partition 31 I provide an opening 35 therethrough. The opening 35 communicates with a discharge opening 36 through the front wall 27 of the splash back through a conduit 37 which extends upwardly from the opening 35 within the chamber 30 into register with the opening 36. If desired the discharge opening 36 may be covered by a screen 38 secured to a suitable frame 39.

In order to vent the oven 2, I provide an opening 40 through the rear wall 4 thereof. A conduit 41 open at its upper end extends from the opening 40 up through the chamber 32 and opening 35 and into the conduit 37, the upper open end of the conduit 41 terminating a short distance above the partition 31 within the conduit 37 as shown at 42 in Figs. 2 and 3. The conduit 41 is made slightly smaller than the opening 35 and conduit 37 in order to provide a peripheral space between the outer walls of the conduit 41 and the inner walls of the conduit 37. Gases from the oven are discharged through the opening 40 and up through the conduit 41 into the conduit 37 and thence out through the discharge opening 36.

As previously stated, it has been found by experience that in the manufacture of cooking ranges it is not practicable to try to fit the oven door so tightly that heat cannot escape around the edges thereof. Even if an oven door was originally fitted this accurately it would soon loose up during use. Most of the heat escaping from the oven of a range as heretofore constructed passes up through a small space 43 between the inner face of the oven door and the frame 13. Then it flows out through the space 44 above the oven door and up along the front of the panel 16 and around the operating handles 24 and 25. This escape of heat over the top of the oven door is very objectionable for the reasons previously stated, in that it eventually heats the operating handles 24 and 25 until they are too hot to grasp by the naked hand, and renders it uncomfortable for a person standing close to the front of the range while tending to something cooking on the top of the range.

With my construction any hot gases escaping from the oven through the space 43 will pass into the chamber 32 through the open end 33 thereof. After entering the chamber 32 the gases flow rearwardly and out through the opening 35 into the conduit 37 from which they are discharged to the atmosphere through the screen 38 disposed in the discharge opening 36 in the splash back 26. The flow of gases from the front to the rear of the chamber 32 is due to the upward slope of the top 31 of the chamber 32 as it extends rearwardly. This rearward flow of the hot gases is greatly facilitated by the flow of gases being vented from the oven 2 through the conduit 41 into the conduit 37. The conduit 41 being smaller than the opening 35 and conduit 37 and being so disposed with relation thereto that a peripheral space, as shown in Fig. 4, is provided between the conduit 41 and the conduit 37, gases passing from the conduit 41 into the conduit 37 will produce an injector action and draw gases from the chamber 37 through the opening 35 into the conduit 37 from which they are discharged through the screen 38.

As hot gases are drawn rearwardly in the chamber 32 and into the discharge conduit 37 cool air will be drawn into the chamber 32 through the space 44 above the oven door 7 and will flow rearwardly in the chamber 32. This cool air will cool the walls of the chamber 32 and retard the flow of heat through the top wall 31 into the top burner chamber 14, thus keeping the top 15 of the range from being uncomfortably hot.

In Fig. 5 I have shown a slightly modified form of my invention. As shown therein I bevel the upper end of the oven door 7, as indicated at 50, and provide a handle 51 thereover. The handle 51 comprises end walls 52 and an arcuate front and top wall 53. The wall 53 extends between the end walls 52 and is spaced from the front wall of the oven door to provide an open ended passageway 54 therebetween. The upper end of the passageway 54 discharges into the chamber 32 through the opening 33 as indicated at 55. Air will be drawn into the passageway 54 through the open lower end 56 and after flowing up through the passageway 54 will be discharged at 55 into the chamber 32. With this construction a greater amount of cool air is drawn into the chamber 32 than in the construction shown in Figs. 1 to 4. Otherwise the two forms are identical in construction and operation.

In Fig. 6 I have shown a slightly modified form of my invention. In this form of my invention I locate the discharge opening 36 in the top 15 of the range, just forwardly of the front wall 27 of the splash back 26, instead of in the front wall 27 of the splash back; and I extend the oven vent opening 40 through the top wall 5 of the oven instead of through the rear wall 4 thereof. The upper end of the discharge conduit 37 registers with the opening 36 and the oven vent conduit 41 extends straight up from the vent opening 40 and into the discharge conduit 37. Otherwise the construction and operation of this form is the same as that shown in Figs. 1 to 4 inclusive, and the same reference numerals are applied to like parts.

In Fig. 7 I have shown another modified form of my invention. In this form of my invention the upper end of the discharge conduit 37 registers with a discharge opening 60 which extends through a rearward extension 61 of a top burner grate 20. Spaced parallel arcuate shaped bars 62, which are integral with the grate 20, extend over the opening 60. The bars 62 serve the twofold purpose of preventing articles falling through

the opening 60 into the conduit 37, and keeping a vessel on the grate 20 from extending over and closing the discharge opening 60. Otherwise the construction and operation of this form is the same as that shown in Fig. 6 and the same reference characters are applied to like parts.

From the foregoing it will be apparent to those skilled in this art that I have provided a very simple and efficient construction for accomplishing the objects of my invention.

It is to be understood that I am not limited to the specific construction shown and described herein as various modifications may be made thereto within the scope of the appended claims.

I claim:

1. In a cooking range having a top and a splash back extending upwardly from said top and an oven disposed below said top and normally closed by a door, the combination of a partition defining a chamber open at the forward end thereof and disposed above said oven with the open end thereof disposed adjacent the upper end of the oven door, a vent opening through said partition adjacent the rear end of said chamber, a discharge conduit extending upwardly from said opening behind said splash back and into register with a discharge opening through said splash back, an oven vent opening through the rear wall of said oven, and a conduit extending upwardly from said oven vent opening through said vent opening and into said discharge conduit above said vent opening, the cross sectional area of said conduit being less than the cross sectional area of said discharge conduit or said vent opening.

2. In a cooking range having a top and an oven disposed below said top and normally closed by a door, the combination of a partition defining a chamber open at the forward end thereof and disposed above said oven with the open end thereof disposed adjacent the upper end of the oven door, a vent opening through said partition adjacent the rear end of said chamber, a discharge conduit extending upwardly from said vent opening, an oven vent opening through the rear wall of said oven, and a conduit extending upwardly from said oven vent opening through said vent opening and into said discharge conduit above said vent opening, the cross sectional area of said conduit being less than the cross sectional area of said discharge conduit or said vent opening.

3. In a cooking range having a top, a top burner disposed beneath a grate mounted over an opening through said top, and an oven disposed below said top and normally closed by a door the combination of; a partition defining a chamber open at the forward end thereof and disposed above said oven with the open end thereof disposed adjacent the upper end of said oven door, a vent opening through said partition adjacent the rear end of said chamber, a discharge conduit extending upwardly from said vent opening into register with a discharge opening through said grate, an oven vent opening through the top wall of said oven, and a conduit extending upwardly from said oven vent opening through said vent opening and into said discharge conduit above said vent opening, the cross sectional area of said conduit being less than the cross sectional area of said discharge conduit or said vent opening.

4. In a cooking range, a top burner compartment, an oven disposed below said top burner compartment, an oven door normally closing said

oven, a partition defining a chamber open at the forward end thereof and disposed between said oven and said top burner compartment with the open end thereof disposed adjacent the top of said oven door, a vent opening through said partition adjacent the rear end of said chamber, a discharge conduit extending upwardly from said vent opening, an oven vent opening extending through a wall of said oven, and a conduit extending upwardly from said oven vent opening through said vent opening and into said discharge conduit above said vent opening, the cross sectional area of said conduit being less than the cross sectional area of said discharge conduit or said vent opening.

5. In a cooking range, a top wall, a top burner compartment under said top wall, an oven disposed below said top burner compartment, an oven door normally closing said oven, a partition defining a chamber open at the forward end thereof and disposed between said oven and said top burner compartment with the open end thereof disposed adjacent the top of said oven door, a vent opening through said partition adjacent the rear end of said chamber, a discharge conduit extending upwardly from said vent opening through said top burner compartment and into register with an opening in said top wall, an oven vent opening through the top wall of said oven, and a conduit extending upwardly from said oven vent opening through said vent opening and into said discharge conduit above said vent opening, the cross sectional area of said conduit being less than the cross sectional area of said discharge conduit or said vent opening.

6. In a cooking range, a top wall, an opening in said top wall, a burner grate in said opening, a top burner compartment under said top wall, an oven disposed below said top burner compartment, an oven door normally closing said oven, a partition defining a chamber open at the forward end thereof and disposed between said oven and said top burner compartment with the open end thereof disposed adjacent the top of said oven door, a vent opening through said partition adjacent the rear end of said chamber, a discharge conduit extending upwardly from said vent opening through said top burner compartment and into register with an opening in said grate, an oven vent opening through the top wall of said oven, and a conduit extending upwardly from said oven vent opening through said vent opening and into said discharge conduit above said vent opening, the cross sectional area of said conduit being less than the cross sectional area of said discharge conduit or said vent opening.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
223,977	Armour	Feb. 3, 1880
1,505,273	Maul	Aug. 19, 1925
2,237,795	Shroyer	Apr. 8, 1941
2,376,571	Brumbaugh	May 22, 1945
2,438,035	Buhman	Mar. 16, 1948
2,526,890	Mendel	Oct. 24, 1950

FOREIGN PATENTS

Number	Country	Date
587,425	Germany	Nov. 3, 1933