

CHARLES H. MILLER & CARL H. MILLER, JR.

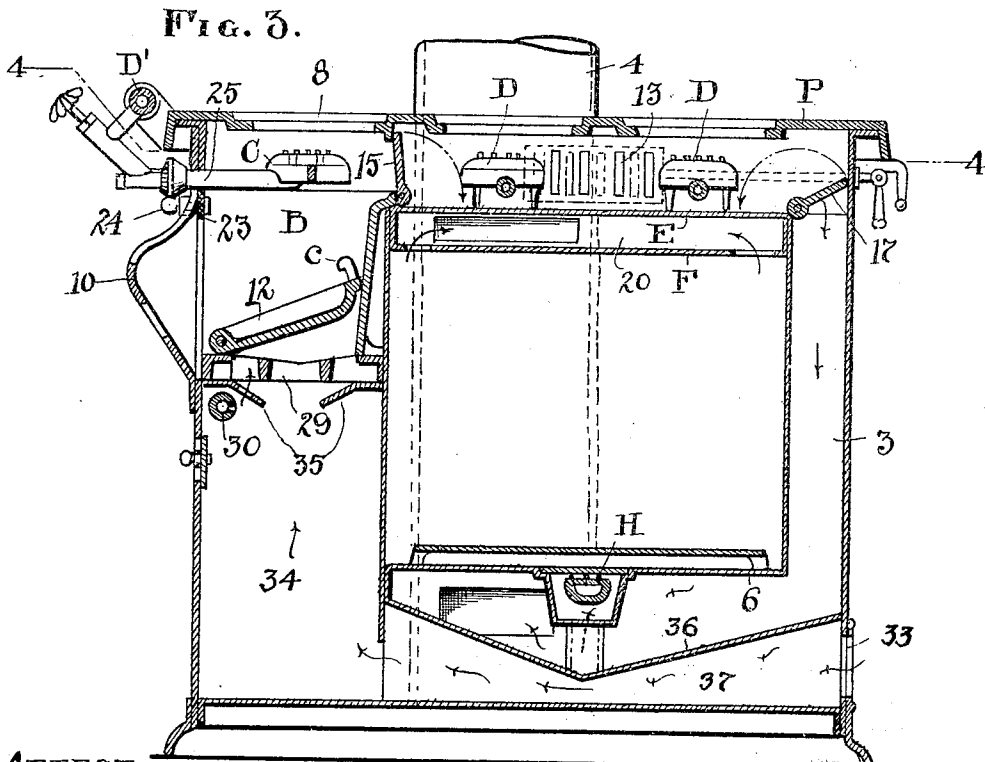
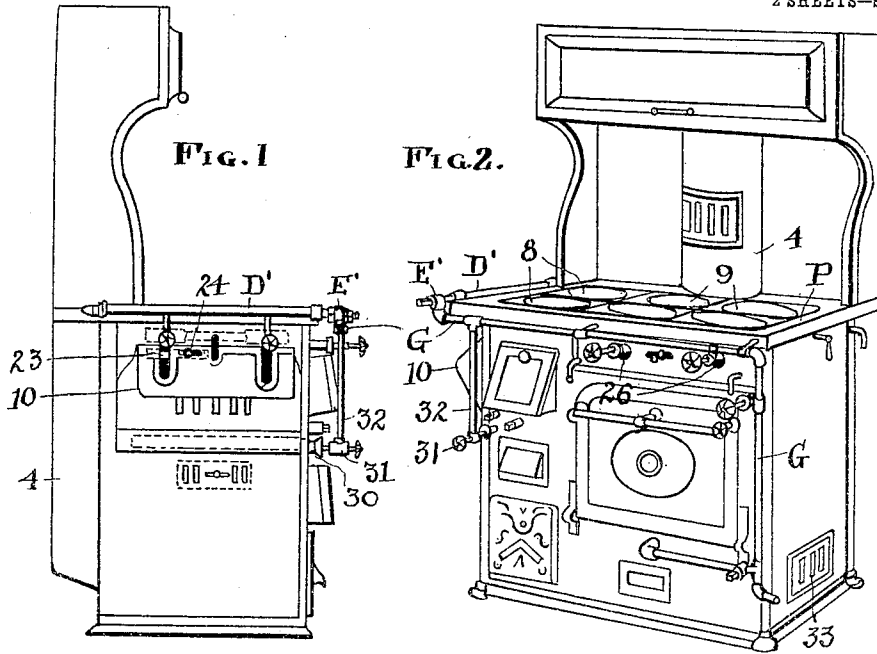
COMBINED SOLID FUEL AND GAS RANGE.

APPLICATION FILED JULY 19, 1909.

960,184.

Patented May 31, 1910.

2 SHEETS—SHEET 1.



ATTEST

E. M. Fisher

F. C. Museum.

INVENTORS

Charles H. Miller  
Carl H. Miller Jr.

BY Fisher & Moore ATTYS.

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2 SHEETS—SHEET 2.

FIG. 4.

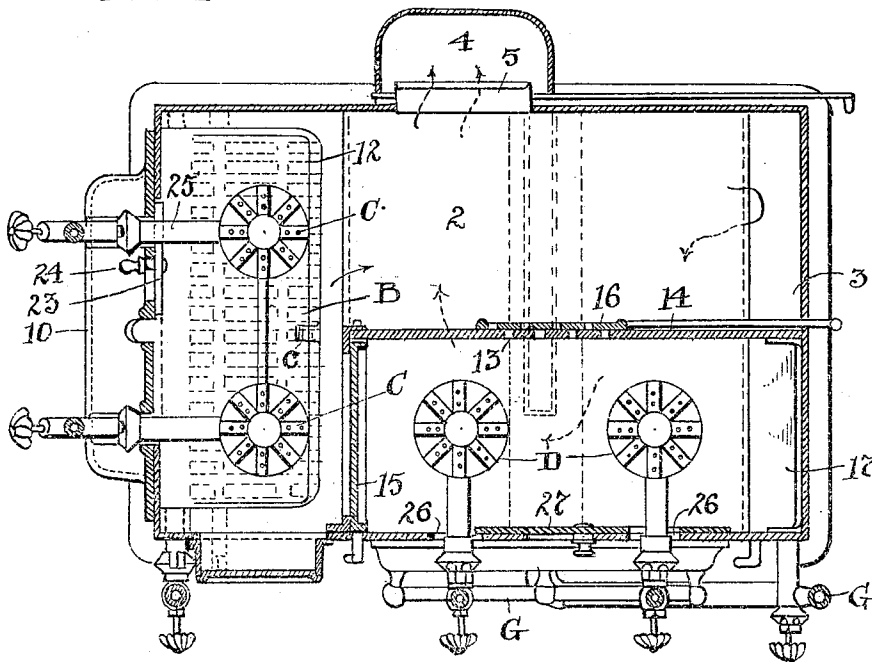
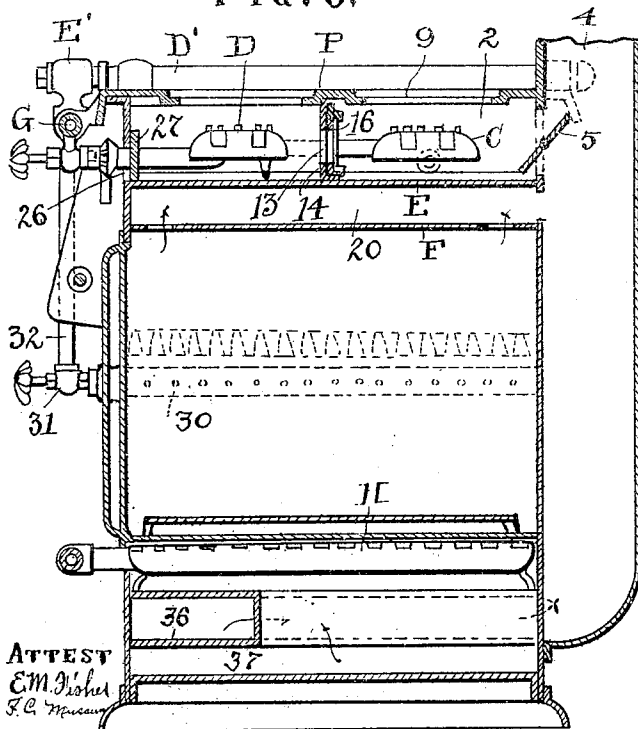


FIG. 5.



ATTEST  
E.M. Fisher  
F.C. Hunsicker

FIG. 6.

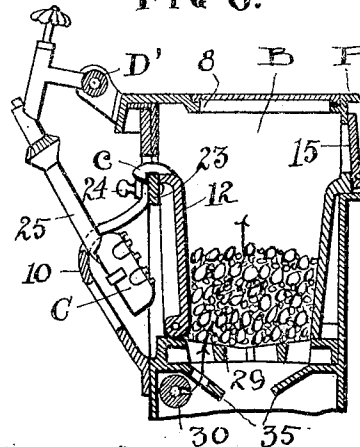
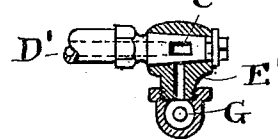


FIG. 7.



INVENTORS

Charles H. Miller  
Carl H. Miller Jr.

BY Fisher & Hunsicker ATTYS.

# UNITED STATES PATENT OFFICE.

CHARLES H. MILLER AND CARL H. MILLER, JR., OF CLEVELAND, OHIO.

## COMBINED SOLID-FUEL AND GAS RANGE.

960,184.

Specification of Letters Patent.

Patented May 31, 1910.

Application filed July 19, 1909. Serial No. 508,277.

*To all whom it may concern:*

Be it known that we, CHARLES H. MILLER and CARL H. MILLER, JR., citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Combined Solid-Fuel and Gas Ranges, of which the following is a specification.

In the accompanying drawings, Figure 1 is an end elevation of the range, and Fig. 2 is a perspective view thereof. Fig. 3 is a sectional elevation of the range across fire pot and oven, and Fig. 4 is a plan view thereof with the top of the range removed, and Fig. 5 is a central cross section. Fig. 6 is a cross section of the fire pot and parts immediately associated therewith, and Fig. 7 is a sectional detail of an automatic cut off in the gas supply connection for the front top gas burners.

The invention as thus disclosed provides for a fire box B or pot in which coal, wood, or other solid fuel may be burned and from which there is a draft flue 2 over the rear half of the range and thence down by flue 3 at the rear when a down draft is wanted. Otherwise the draft is direct to the flue or pipe 4 over the top of the range as usual by damper 5. In this connection it may be explained that the products of combustion from the fire pot spread across the entire rear area of the range after entering the throat of the down flue 3 and from which the said products distribute themselves generally beneath the oven or at the bottom over plate 6, as plainly shown. It will be seen, also, that the range has six holes for pots, and that the first two holes, 8, immediately over the fire pot, and the two rear holes 9 are exposed at all times to the heat products from the fire pot, but if gas be used for these holes the two gas burners C are adapted to be swung up into using position under holes 8, as seen in Figs. 3 and 4. Otherwise said burners lie back out of the way in hood 10. In this instance a guard plate 12 is hinged at its lower edge and adapted to be swung up to position to cover the said burners C and form one side of the said pot, but when the said burners are used said plate is turned down in the fire pot as in Fig. 3. Now, as a further conception of the present invention we have formed a special gas sub-division or space at the front and top of the range com-

prising two burners, D, which occupy said subdivision or compartment located between the top plate P of the range and plate E next beneath and which compartment comes in front of draft flue 2 from the fire pot. Said compartment has a wall 14 which divides the top of the range lengthwise between said plates P and E into two equal parts, the said gas burners D occupying the front part and flue 2 being behind the said plate. The said gas burners D are removably supported in their positions as shown and are supplied with gas and controlled by needle valves as gas burners usually are and when used are entirely cut off from the solid fuel portion and passages of the range by means of wall 14 at the rear and cross wall and damper 15 at the front and which also shuts off the fuel-box. Said wall 14 has one or more draft openings 13 controlled by a damper 16 through which draft is opened for said burners to rear flue space 2 and thence to the chimney flue. It will also be noticed that the top of the gas burner compartment over burners D is provided with openings corresponding to said burners, and of course the products of combustion from the fire-pot cannot enter this space when dampers 15, 16 and 17 are closed. The dampers 15 and 17 are adapted to turn down when opened, while damper 16 slides to open holes 13, and by putting lids on the holes over burners D and opening dampers 15 and 17 the products of combustion from the fire pot have free course over the top of the stove and through the gas burner compartment as well as by flue 2. In such case the burners D are usually removed and this is provided for in their couplings with the gas supply pipe G.

Incident to the exclusive use of the range for gas we provide a gas burner H in the bottom of the oven adapted to be used for heating the oven and from which the products of combustion pass out at the top of the oven to the chimney flue, the passage for said products being between the intermediate plate E of the top of the range and plate F next beneath the same and constituting the top plate of the oven. The usual direct damper 5, Fig. 4 is used in the chimney flue.

It will be seen by the foregoing that at least four of the six holes can always be used whether hard or gaseous fuel be

burned, and by closing direct damper 5 when the gas burners C are used the rear holes 9 get sufficient heat to do some kinds of cooking.

5 The front guard plate and side wall 12 of the fire pot are provided with a catch *c* adapted to be engaged by a sliding latch plate 23, which has a finger grip 24 at the front running in a slot in the stove wall, and said latch or plate 23 also is adapted to  
10 engage beneath the stem 25 of the rear gas burner C when it is raised and thus hold connected burners C up in using position. In this case the plate 12 is down. Again,  
15 the gas supply pipe D' which carries gas burners C has one end, Fig. 7, provided with gas inlet opening *c'* from the fixed gas connection or valve E'. This opening is so positioned that when the said burners C are  
20 retired into hood 10 out of use the said opening is automatically cut off by the rotation of pipe D' in fixture valve E' and no gas can then flow to the burners. It follows that the said gas passage is only opened when  
25 the burners are up for use, Fig. 3. So it occurs that all danger of escape of gas to the range when other fuel than gas is used is absolutely avoided, and there are no valves which can be tampered with to affect this  
30 security to the range and none to be opened or controlled by hand.

In the event that burners D are removed it is obviously necessary that openings 26 at the front of the stove through which the  
35 supply ends of the burners project should be closed to prevent the products of combustion from escaping at said joints. A slide damper 27 is therefore used to close said openings.

40 The range as described permits either one or all four gas burners to be used at one time, and in fact even all of the six top openings may be used for cooking when employing gas, because the heat products from  
45 burners C may be caused to pass through flue 2 beneath rear covers 9 by closing damper 15 as shown in Fig. 3 and this will heat holes 9. Then when coal or wood is used in fire pot B all the six holes may be  
50 heated therefrom by opening dampers 15 and 17. Burners D may remain in place when firing in this manner but are preferably removed and slide damper 27 closed. As a rule, however, when coal or wood is  
55 used as a fuel and gas too in burners D, dampers 15 and 17 are closed, thus permitting said gas burners D to be fired at the front of the stove while the remaining four openings 8 and 9 at the side and rear respectively  
60 are being fired by the hard fuel from the fire pot. When solid fuel is used, especially coke, quick starting is promoted in fire pot B by means of gas burner 30 arranged from front to rear thereof be-  
65 neath grate 29, and the gas connections for

this burner comprise valve 31 and vertical pipe 32 which connects with supply pipe G, see Fig. 2. Guard plates 35, one of which is perforated for the upward passage of the  
70 gases and flames from burner 30, are arranged beneath grate 29 to direct the flow of ashes centrally to ashpit 34, and the perforated plates also serve to protect burner  
75 30 from clogging up with ashes. The air for proper combustion for the hard fuel and for the gases from burner 30 is taken in preferably from the opposite end of the stove at intakes 33 and is caused to flow  
80 beneath false bottom 36 through passage 37 before entering ash pit 34. Bottom 36 is V shape to purposely contract passage 37 at a point centrally beneath burner H, thereby  
85 assuring preliminary heating of the air before the same reaches fire pot B and this is found to be of great benefit to assure perfect combustion of the gas and coal when both  
90 are used together at the fire pot and which double firing is sometimes needful where extreme heat is required or when the coal or coke is wet or of poor quality.

What we claim is:

1. A kitchen range provided with a space in its top extending from the front of the range to the rear thereof and a partition which divides said space into a rear draft  
95 flue in communication with the fire pot and a front space, said front space being provided with gas burners and having dampers at its ends by which the products of combustion from the fire pot can be prevented  
100 from reaching said gas burners, and provided with holes in its top adapted to be closed by lids.

2. A kitchen range adapted to use both solid and gaseous fuel and provided with a  
105 draft space at its top extending from the fire pot to the rear of the range and a partition dividing said space into a draft flue at the rear and a front space, respectively, dampers at the ends of said front space adapted  
110 to exclude the products of combustion from the fire pot, and gas burners mounted in said front space between said dampers.

3. A convertible solid fuel and gas range having a fire pot adapted to burn gas or  
115 solid fuel provided with a top space which extends from the fire pot to the rear of the range and a partition dividing said space into a rear draft, flue and a front space, dampers at the ends of said front space  
120 adapted to be closed when gas is burned therein and to be opened for draft from the fire pot when hard fuel is exclusively used, and burners in said front space, the top of the range being provided with holes for ves-  
125 sels over said front space and means to cover said holes.

4. In kitchen ranges, a range having a fire-pot for solid fuel and a grate at the bottom thereof, in combination with a tubu- 130

lar gas burner beneath the outer edge of  
said grate and an ashguard closed over the  
immediate top of said burner and having a  
downwardly inclined portion inward from  
5 said tube provided with perforations, where-  
by openings are provided for the passage of  
the gas flame to said grate and ashes are  
shed from the said guard.

In testimony whereof we affix our signa-  
tures in presence of two witnesses.

CHARLES H. MILLER.  
CARL H. MILLER, JR.

Witnesses:

E. M. FISHER,  
R. B. MOSER.