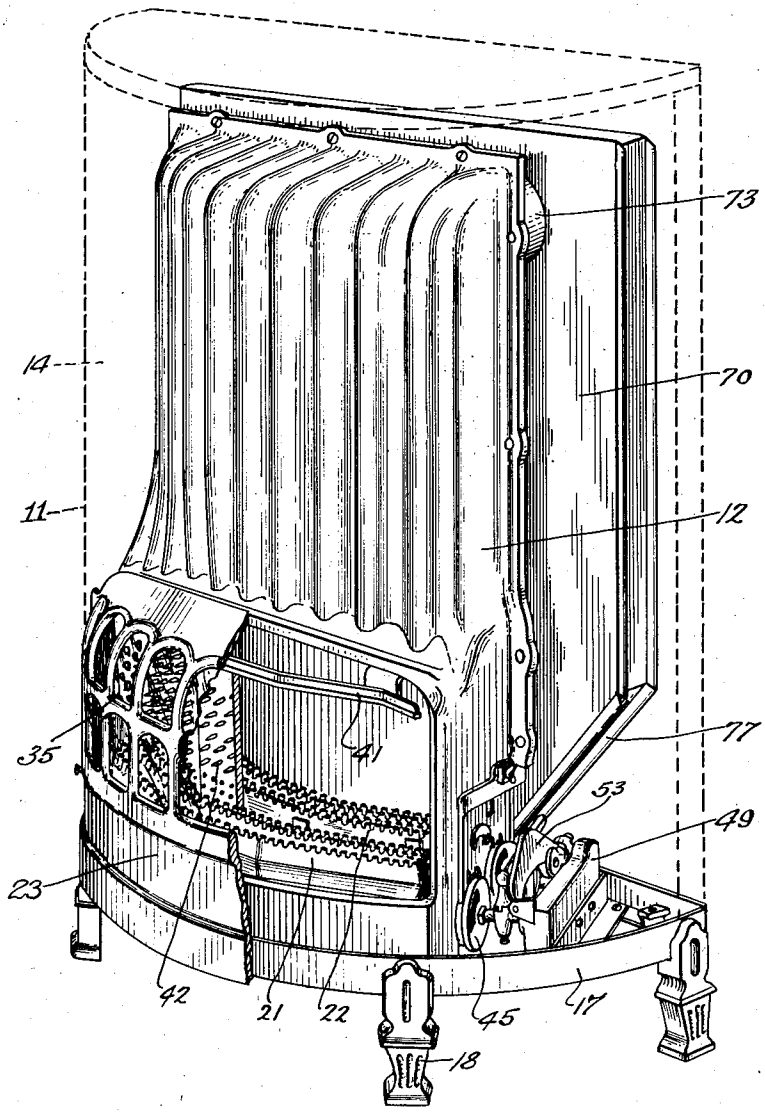
Feb. 19, 1935. L. MOORE ET AL 1,991,513

STOVE CONSTRUCTION

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Fig. 1



Inventor:
Lewis Moore
and
Isaiah S. Holloway
John C. Carpenter
Atty.

Feb. 19, 1935. L. MOORE ET AL 1,991,513

STOVE CONSTRUCTION

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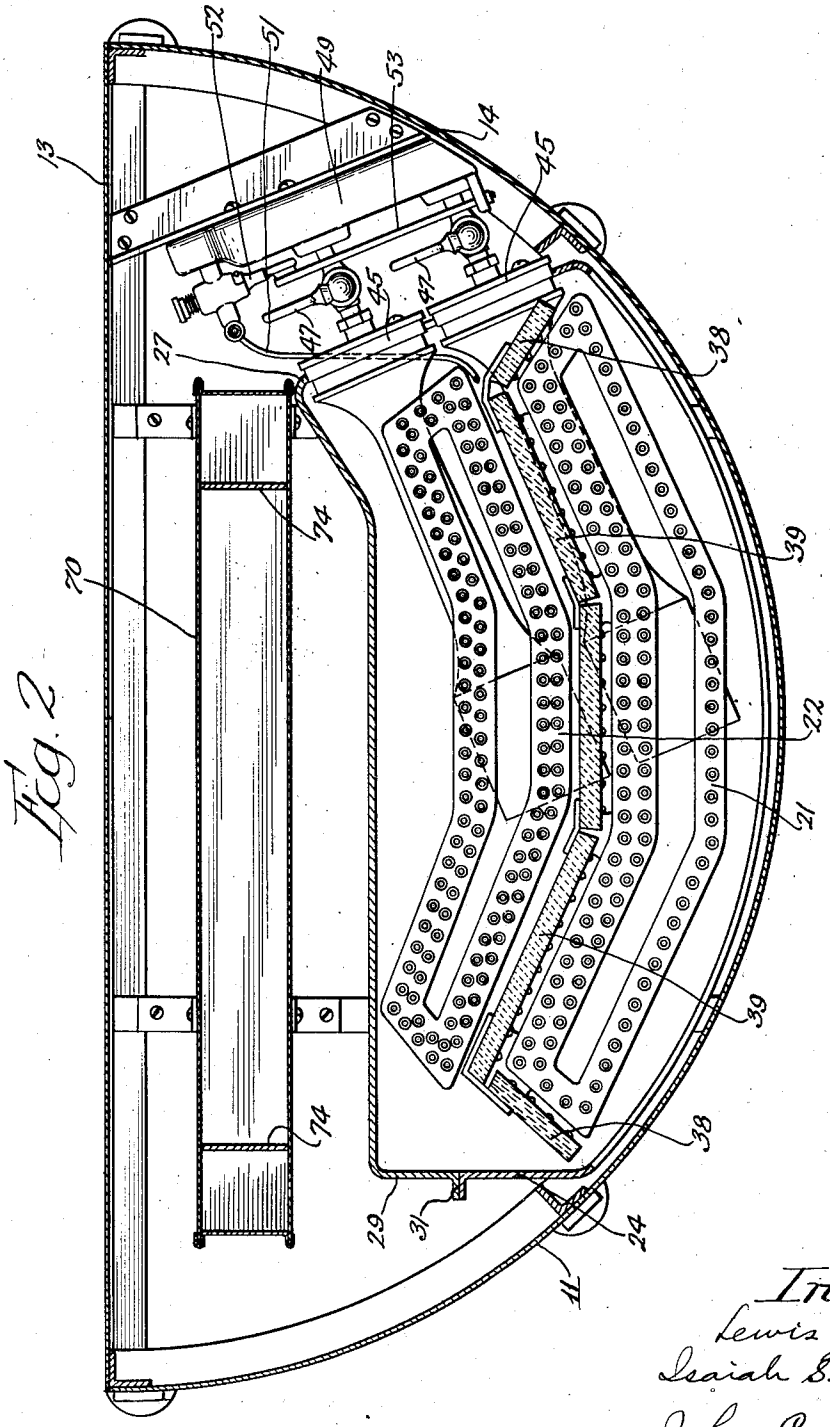


Fig. 2

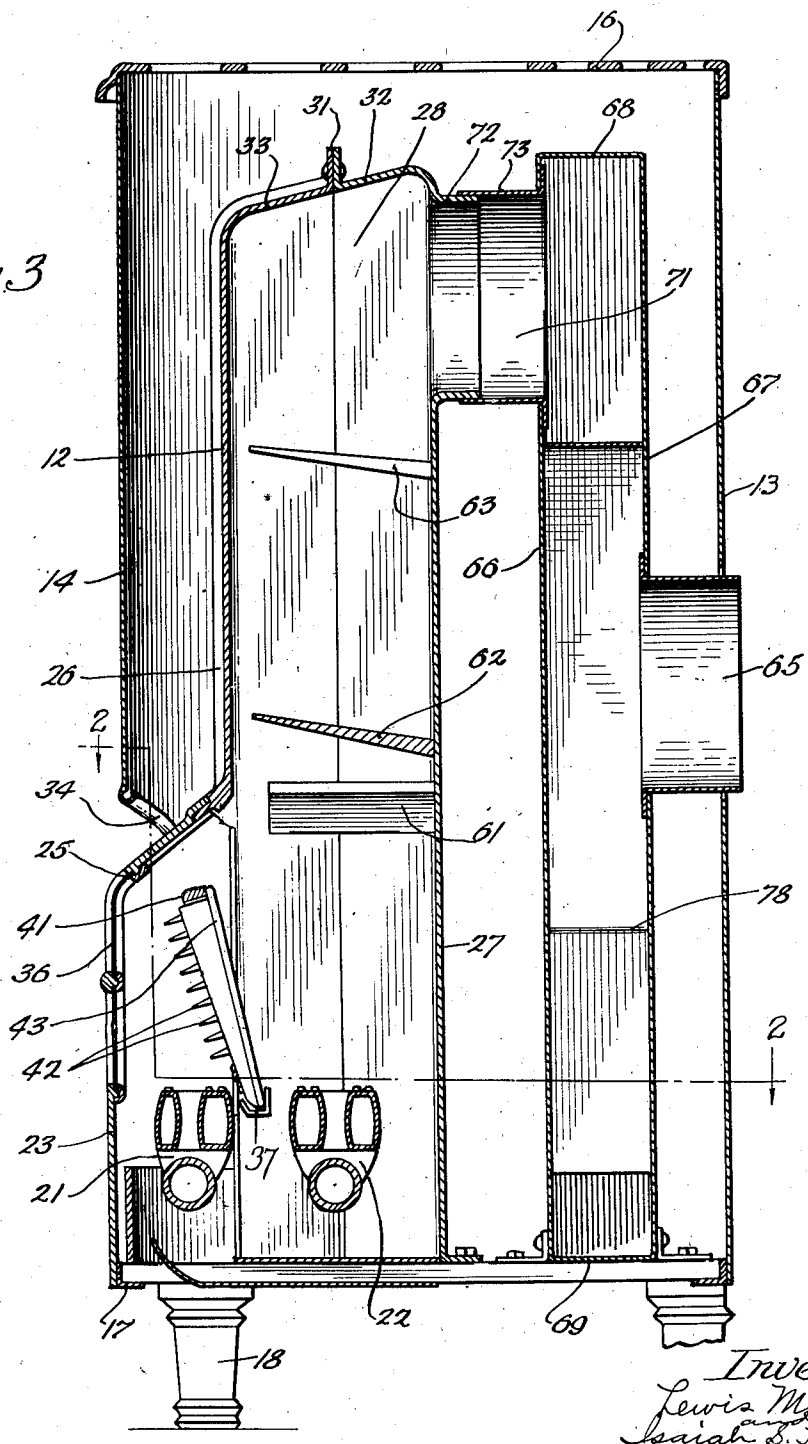
Inventor:
Lewis Moore
Isaiah S. Holloway
John C. Carpenter
Atty.

Feb. 19, 1935. L. MOORE ET AL 1,991,513

STOVE CONSTRUCTION

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Fig 3



Inventor:
Lewis Moore
and
Isaiah S. Holloway
John C. Carpenter Attys.

Feb. 19, 1935. L. MOORE ET AL 1,991,513

STOVE CONSTRUCTION

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Fig. 4

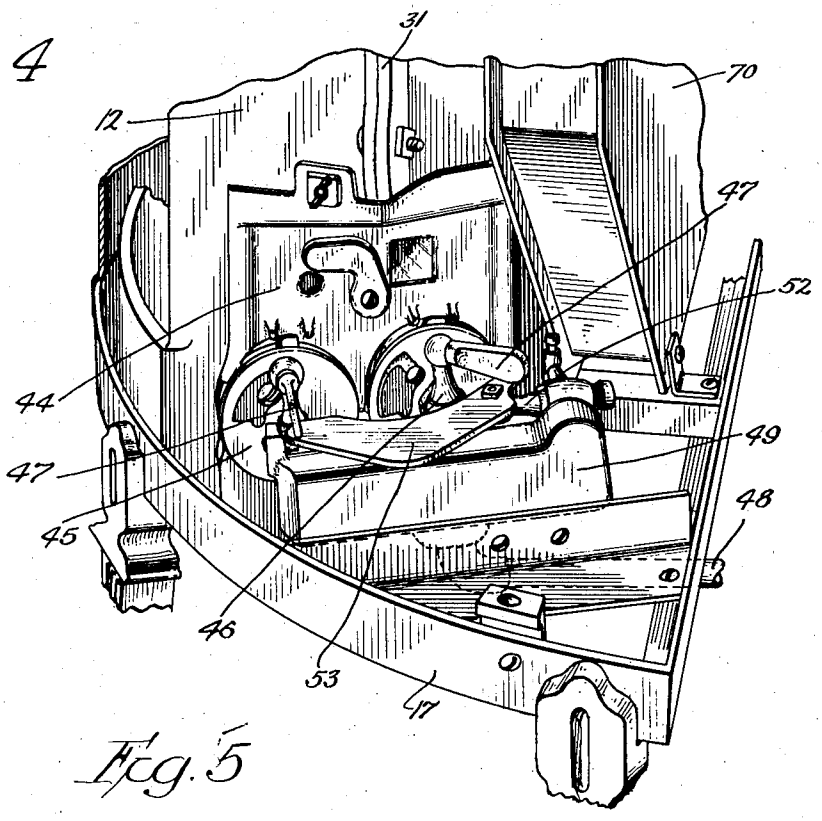
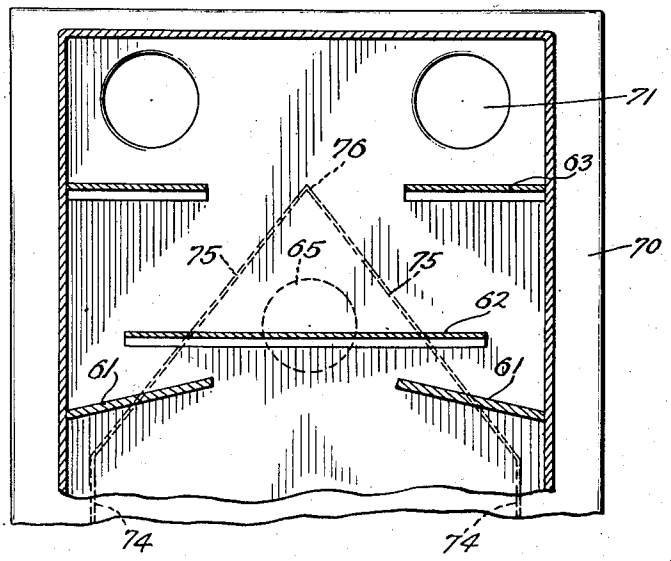


Fig. 5



Inventor:
Lewis Moore
and
Isaiah S. Holloway
John C. Carpenter Atty.

Patented Feb. 19, 1935 1,991,513

UNITED STATES PATENT OFFICE

1,991,513

STOVE CONSTRUCTION

Lewis Moore and Isaiah S. Holloway, Joliet, Ill., assignor to Moore Brothers Company, Joliet, Ill., a corporation of Illinois

Application October 2, 1931, Serial No. 566,468

1 Claim. (Cl. 126—90)

This invention relates in general to heating stoves, and has more particular reference to stoves of the circulating or convection type intended primarily for room heating. It will, however, be readily apparent, as the invention is better understood, that numerous of its features are capable of other valuable application and uses.

A principal object of the invention is the provision of a stove for heating rooms and other purposes by the combined circulation of air and direct radiation.

Another important object of the invention is the provision of a stove of the circulating type, the parts of which may be so constructed and arranged as to materially increase the rate of circulation of air passing through the stove to be heated and to increase also the rate of heating of the air passing through the stove.

The invention has for a further important object the provision of a stove of improved appearance, and which will occupy minimum space in the room to be heated.

Another important object of the invention is the provision of a stove of the general character described, employing gas or other fluid fuel, the parts of which will be so constructed and arranged as to obtain maximum efficiency in mimimum space from the fuel consumed.

Another important object of the invention is the provision in a stove of this general character of a burner and pilot light construction, constructed and arranged to insure continuation of the burning of the pilot light when the main burners are cut off, except when deliberate extinguishment of the pilot light is desirable.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, when taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings,

Figure 1 is a perspective view of a heating unit of the stove embodying my present invention, the casing outline being indicated in section;

Fig. 2 is a horizontal section through the stove and casing, taken on the line 2—2 of Fig. 3;

Fig. 3 is a central vertical front-to-back sectional view of the same;

Fig. 4 is a detail perspective view showing the burner and pilot light control; and

Fig. 5 is a detail vertical sectional view taken transversely of the casing and showing the baffles in the forward or front flue and the fuel communication in the rear flue space.

The stove shown on the drawings is of general semi-circular outline in the horizontal plane. It comprises primarily an outer circulating casing 11 and a combined combustion and flue circulating organization 12. The casing of the stove consists of a flat back wall 13, a vertical hemicylindrical front wall 14, and a grill top 16, all mounted in a suitably constructed angle iron framework 17 adapted to hold the casing parts in their intended relation and to support the combustion and flue assembly 12.

The stove is preferably provided with legs 18 for arranging the body of the stove above the floor, permitting upward circulation of air as will presently be described.

In the embodiment of the invention shown on the drawings, gas or other fluid fuel is supplied to two burners 21 and 22 formed generally of arcuate form, as illustrated in Fig. 2. These burners are mounted within a combustion chamber which is or may be formed of a vertical hemicylindrical front wall 23 extending throughout a greater part of the semi-circular arc of the stove front and terminating in inwardly extending parts 24 forming portions of the end wall of the combustion chamber.

At a substantial distance above the burners, the front wall extends inwardly at 25 to a vertical wall 26 extending up behind and spaced from the wall 14. A rear wall 27 co-operates with the walls 25 and 26 to complete the combustion chamber and to form an upwardly extending front flue space 28 through which the products of combustion circulate in their passage to the flue outlet of the stove.

The wall 26 is deflected outwardly at each end at 29 into connection at 31 with the adjacent edges of the front walls 23 and 26 and outwardly also at 32 at the top into connection with an inwardly extending portion 33 of the front flue wall 26.

The front wall 23 of the combustion chamber is preferably arranged beyond or in front of the wall 14 and this wall is cut away at the lower part of the front to provide an air inlet at 34 around the front wall 23 and communicating with the interior of the casing.

The front wall 23 of the stove provides direct radiation from the combustion chamber into the room and is or may be provided with a plurality of openings 35 closed by suitable transparent heat resisting sheets 36 of suitable or preferred material.

A plurality of brackets 37 (Fig. 3) are carried by the burner 21 and radiation elements 38 and

39 are supported upon these brackets in parallel inclined position from the burner 21 and rest against a top retaining bar 41 suitably secured in place. Each radiation element 38 and 39 is of refractory material adapted to absorb and radiate heat and is provided with forwardly extending projections 42. Each element is also provided with a flange 43 adapted to rest against and engage the bar 41.

The burners are arranged through a burner plate 44 secured in a suitable opening in the right-hand side wall of the combustion chamber (Fig. 4). The air mixing chambers are arranged outside the combustion chamber, as indicated at 45, and each burner is adapted to be controlled by a valve 46 having a valve handle 47 adapted to swing horizontally from closed to open position.

Fluid fuel is supplied to the burners through a pipe 48 leading into a manifold 49 with which the valves 46 communicate.

A pilot light 51, (Fig. 2) consisting of a tube, is arranged to deliver a pilot flame between two burners, and extends through the burner plate 44 to a valve 52 in turn communicating with the manifold. The valve 52 is provided with an operating handle 53 in the form of a flat plate (see Fig. 4) normally arranged in horizontal position upon the manifold and beneath the valve handles 45 when the pilot light valve is open and fuel delivered to provide the pilot flame. The plate 53 is so constructed and arranged that it can only be moved or swung up into closed position when both of the valves 46 have been closed by movement of the handles 47 around into parallelism with the burner plate 44. The valve handles may be reached for manipulation through an opening in the adjacent side of the casing of the stove, which may, if desired, be closed with a suitable door.

Baffles are provided within the chamber 28 to retard and divert the gases of combustion as they pass up from the burner. In the instant embodiment of the invention a lower side baffle 61 extends in and upwardly from each side of the flue space 28. A cross baffle 62 is provided to extend forwardly and upwardly from the rear wall 27 of the flue space and a side baffle 63 is provided at each end of the combustion flue and is arranged in inclined position, as shown in Fig. 3, upwardly from the back wall. These several baffles are so arranged as to direct the air combustion against the front wall 26 of the flue space 28.

A rear heating cell or drum is provided to receive the products of combustion from a flue space 28 and to conduct them in a circuitous path to an outlet 65 adapted for connection to the chimney. This drum comprises a vertically arranged metal shell consisting of a front wall 66 and back wall 67 and top and bottom walls 68 and 69. Two communicating passageways, generally indicated by reference characters 71, are provided between the upper portions of the flue space and the drum 70, these passageways being formed by flanges 72 in the walls 27 and nipples 73 connecting the flanges with the interior of the top of the drum 70.

Within the drum 70 a metal baffle is provided to direct the products of combustion downwardly to the bottom of the stove and thus permit them to pass upwardly to the chimney outlet 65. This baffle comprises a metal partition having vertically arranged sides 74 extending up from near the bottom of the stove to above the outlet 65 and then inwardly angularly at 75 to an angle bend 76 at the top. The products of combustion pass upwardly through the drum 28 and are deflected constantly into contact with its front wall 26 in the circuitous path given them by the baffles 61, 62 and 63. At the top they pass through the passageways 71 and down on each side of the baffles in the drum 70 to near the bottom and thence up to the outlet. The drum 70 may be narrower at its bottom, as indicated at 77, and corresponding inclination is given the sides 74 of the baffle plate in the drum, as indicated at 78.

In the operation of the stove the front 23 becomes highly heated and direct radiation is accomplished from the front and through the agency of the radiants 38 and 39 this radiation penetrates and heats directly the lower portion of the room and the air immediately adjacent the front wall 23 becoming heated rises and passes through the opening between the casing 14 and the wall 26 for circulation out through the grill top 16. The air is thus heated prior to its entry into the casing and the rate of circulation has therefore materially increased.

The baffles 61, 62 and 63 in directing the hot products of combustion against the walls 26 further serve to heat this more rapidly circulating air.

In addition to the circulation just described, air is drawn from the room into the bottom of the stove and passes up around the drum 70 and around the remainder of the combined combustion chamber and flue space, all, of course, passing out at the top of the stove. It will be apparent that the front portion of the stove and the air circulating through it is more highly heated than the rear portion of the stove and that the stove may be located relatively near to a wall of a room thereby effecting economy of space. The semi-circular shape not only provides a stove of pleasing and improved appearance but, being devoid of angular corner pockets, accomplished greater efficiency of air heating and air circulation.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being a preferred embodiment thereof.

I claim:

A stove comprising a casing having a rear wall and a vertical substantially cylindrical wall forming the front and sides thereof and provided with an opening at the lower portion of its front, a combustion chamber disposed within said casing and having a flue connected with the upper portion thereof spaced rearwardly from said curved front wall, said combustion chamber having a vertical substantially cylindrical lower front portion of substantially the same curvature as said front wall and extending through said opening and forming a continuation of said sides and in spaced relation to the upper edge of said opening to provide an air inlet, said cylindrical lower front portion of said combustion chamber being provided with transparent openings, and a radiant heat organization in said combustion chamber for radiating heat forwardly through said openings.

LEWIS MOORE.
ISAIAH S. HOLLOWAY.