

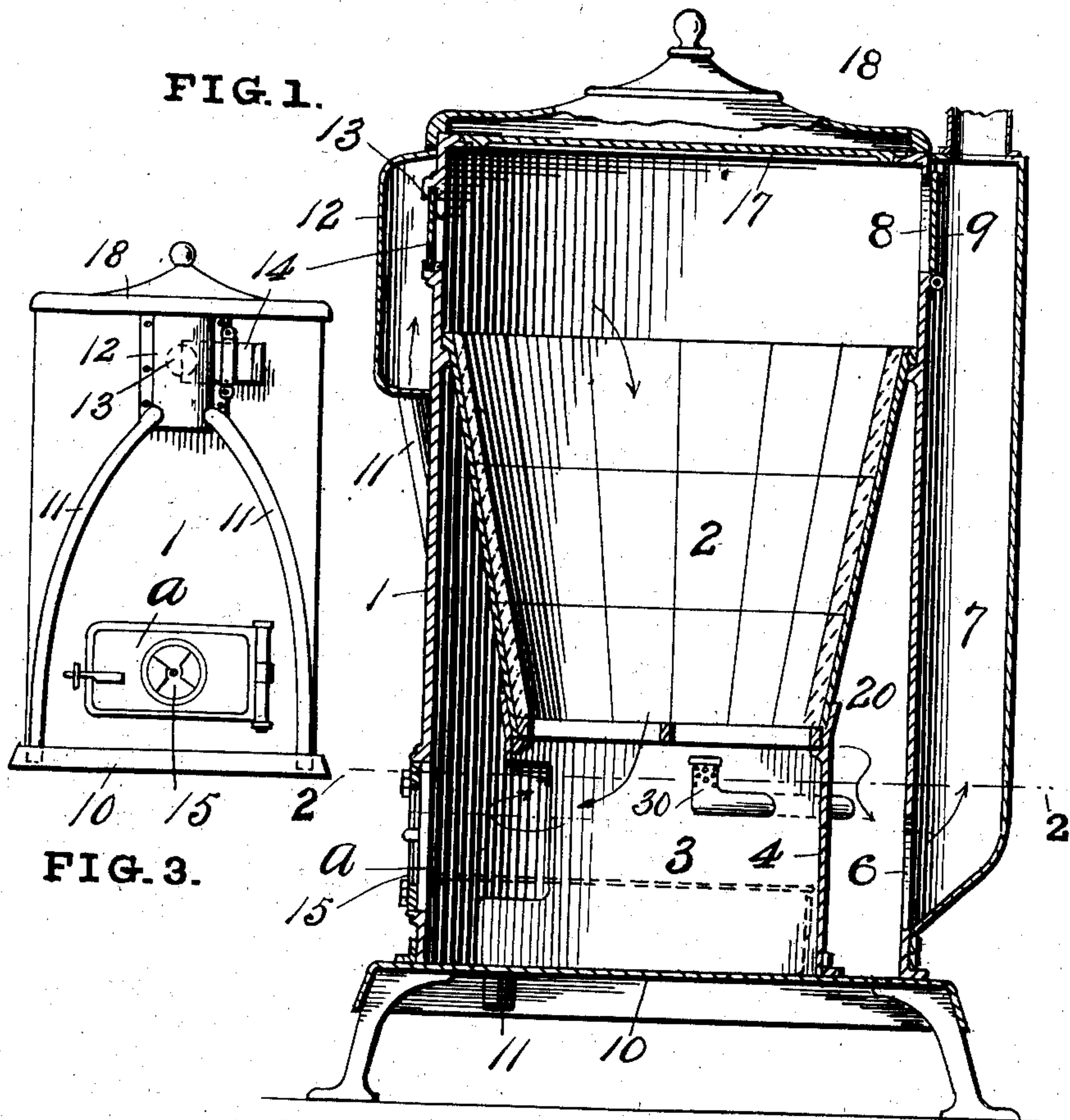
No. 736,740.

PATENTED AUG. 18, 1903.

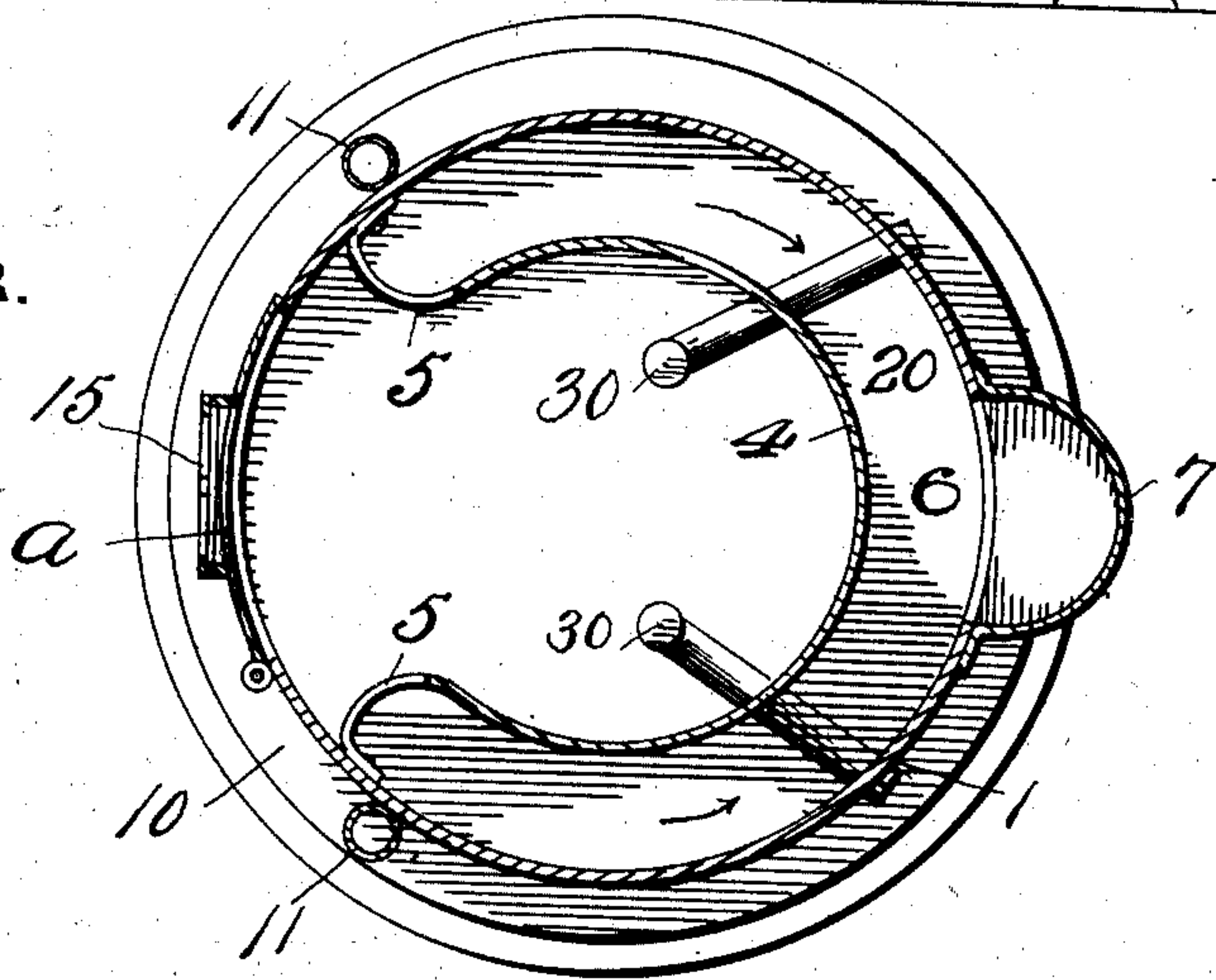
C. J. KIRCH.  
HEATING STOVE.

APPLICATION FILED MAR. 30, 1903.

NO MODEL.



**FIG. 2.**



Witnesses  
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# UNITED STATES PATENT OFFICE.

CHARLES J. KIRCH, OF KEOKUK, IOWA.

## HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 736,740, dated August 18, 1903.

Application filed March 30, 1903. Serial No. 150,173. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES J. KIRCH, a citizen of the United States, residing at Keokuk, in the county of Lee and State of Iowa, have invented certain new and useful Improvements in Heating-Stoves, of which the following is a specification.

This invention relates to heating-stoves and furnaces.

The object of the invention is to produce a stove or furnace of simple construction which shall be habitually a downdraft-stove, but which can be used as an updraft-stove for purposes of ignition or otherwise, and in which the air for the downdraft shall have been heated before it is fed to the fire.

The invention consists in constructions and combinations of elements hereinafter pointed out in the claims.

Figure 1 is a vertical central section of the stove through the plane of the door and smoke-stack. Fig. 2 is a section on line 2, Fig. 1. Fig. 3 is a front view of the stove-body on a reduced scale.

The stove-body 1 is preferably of cylindrical form, as shown, and contains a fire-pot 2 of common construction, preferably tapering. Below the fire-pot is an ash-pit 3, from which ashes may be removed as usual. The base of the fire-pot is supported by a partition 4, which partition is nearly cylindrical in form, but at the front side of the stove curves outwardly and is joined to the body 1. This partition has openings 5 at each side of the fire-door *a* and below the fire-pot. The stove-body has an opening 6 at the back side below the fire-pot, and a flue 7 covers this opening. The flue 7 is preferably a crescent-shaped sheet of metal attached at its edges to the outside of the stove-body. The stove-body also has an opening 8 into the flue above the fire-pot, and this opening may be closed by damper 9.

At the front of the stove, extending through the base 10 and alongside the body 1, are two pipes 11, which are open below and open above into an outside air-chamber 12. This chamber has an opening or passage 13 into the stove-body above the fire-pot, and such opening can be closed by the sliding damper 14.

The fire-door is supplied with a suitable damper or draft-controller 15, as is usual. Fuel is introduced at the top of the fire-pot in convenient manner, as by removing the covers 17 and 18.

In starting a fire the damper 14 is closed and the damper 9 opened, and the fire is ignited from below, as is usual in updraft-stoves, air being supplied through the door. When the fire is well burning, damper 9 may be closed (as well as the damper 15) and damper 14 opened. The air-supply is then through pipes 11, cold air being taken in at the bottom of said pipes and this air becoming heated as it rises in the pipes, and so this air enters the body of the stove above the fire-pot already well heated, entering through the opening 13. The direction of air-currents are thence indicated by arrows. Air passing down through the fire-pot enters openings 5 and passes around the stove toward the rear, being in contact with the outside of the fire-pot between said fire-pot and the body 1 of the stove. The hot air and products of combustion escape from the nearly annular chamber 20 into the flue 7, and so pass to the chimney or smoke-stack.

The air of the room in which the stove is located is heated by radiation only. The pipes which conduct the air to the stove for downdraft purposes being external form no obstruction to the circulation of air and gases within the stove, yet the air within such pipes is thoroughly heated before it reaches the fire.

To protect the grate from excess of heat, I arrange pipes 30 in the side or sides of the stove. Pipe 30 is preferably a pipe extending through the side of the stove and turned up just below the grate, the upper end being closed to prevent ingress of ashes and the sides of the upturned portion perforated to permit escape of air. The inflow of air through these pipes prevents the heating of the grate to such a temperature as would be destructive while not perceptibly interfering with combustion.

What I claim is—

1. In a stove, the combination of a cylindrical shell or body, a tapering fire-pot within the same, and fitting said stove-body at its upper end, a nearly cylindrical partition be-

low the fire-pot, and passages through this partition so that air entering the space between the partition and shell may surround the fire-pot.

5 2. The combination of a cylindrical body, tapering fire-pot, and nearly cylindrical partition supporting the fire-pot, of a flue outside the stove, a passage through the partition below the fire-pot and a passage from  
10 the annular space about the fire-pot to the outside flue which extends up alongside the stove-body.

3. The combination with a stove-body, of two pipes, one at each side of the stove and  
15 outside said body, said pipes open at the bottom and leading upward from near the bottom of the body to a chamber outside the stove-body, an opening from said chamber

into the stove-body above the fire-pot, and a damper controlling said opening. 20

4. A downdraft-stove having a fire-pot outside air-supply pipes in contact with the stove-body and leading into the stove-body above the fire-pot, an annular chamber surrounding the fire-pot, a passage for hot air from below 25 the fire-pot leading to this chamber, and a smoke-flue outside the stove-body communicating with the annular chamber below the fire-pot, all combined.

In testimony whereof I affix my signature 30 in presence of two witnesses.

CHARLES J. KIRCH.

Witnesses:

L. A. FOX,

J. M. CHAPPELL.