

No. 693,438.

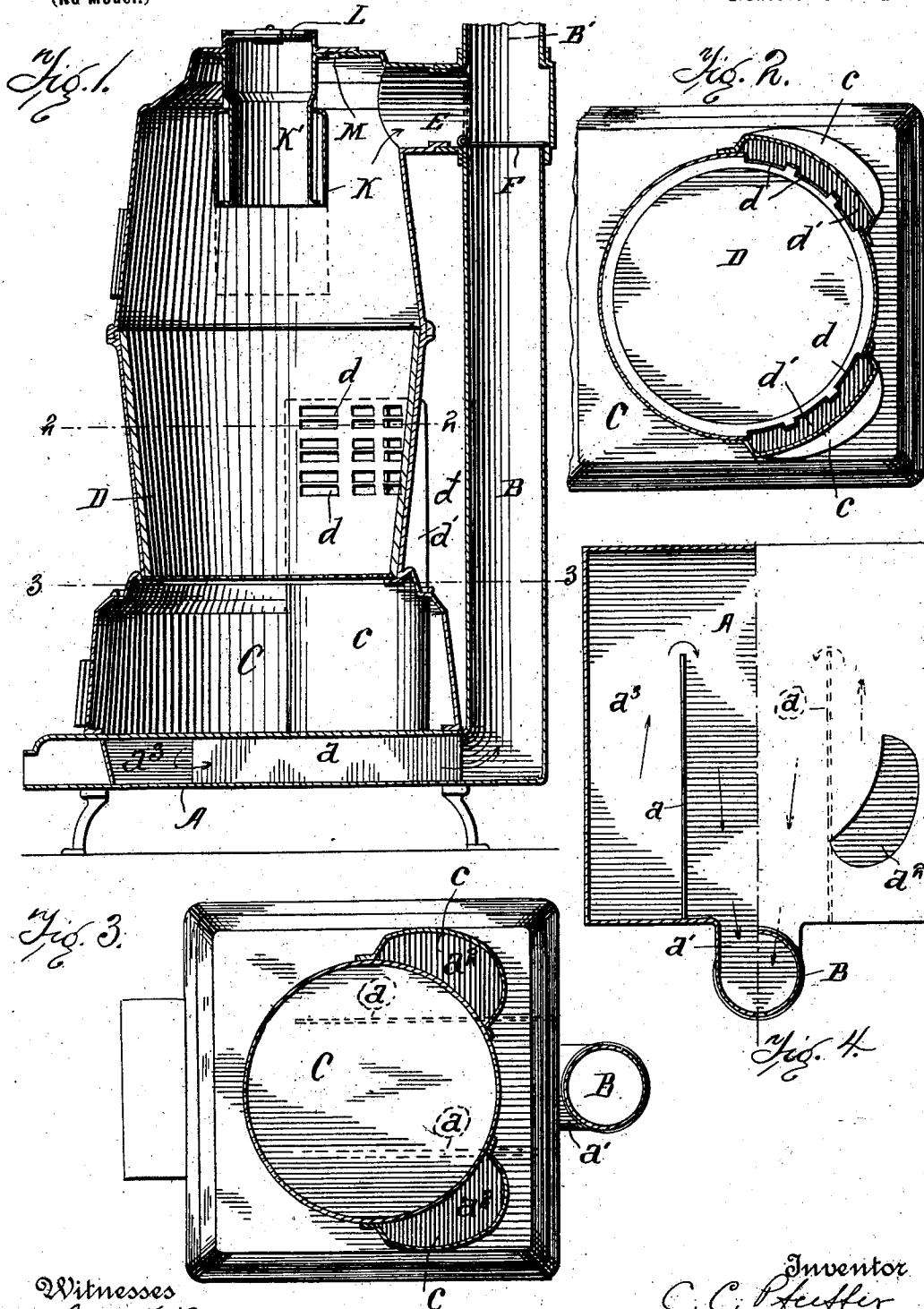
Patented Feb. 18, 1902.

C. C. PFEIFFER.  
HEATING STOVE.

(Application filed May 23, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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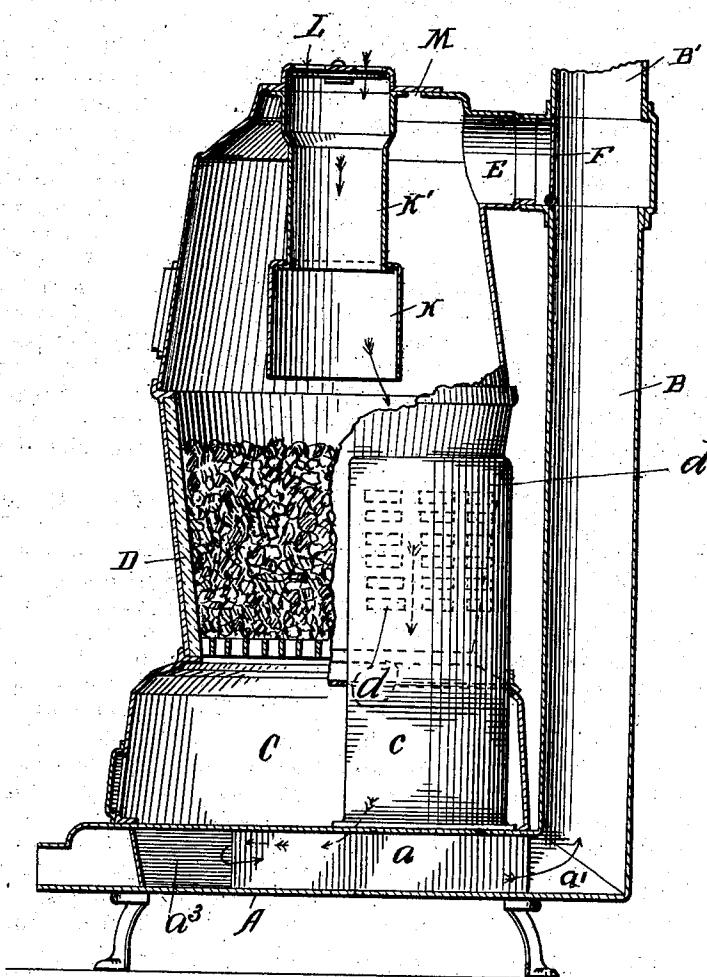
HEATING STOVE.

(Application filed May 28, 1901.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 5.



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# UNITED STATES PATENT OFFICE.

CHARLES C. PFEIFFER, OF LOUISVILLE, KENTUCKY.

## HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 693,438, dated February 18, 1902.

Application filed May 23, 1901. Serial No. 61,530. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. PFEIFFER, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented 5 certain new and useful Improvements in Heating-Stoves, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an improvement 10 in heating-stoves.

The object of the invention is to produce an updraft or downdraft stove of special construction.

Figure 1 is a vertical central section of so 15 much of the stove as is necessary to illustrate the invention. Fig. 2 is a horizontal section on lines 2 2, Fig. 1. Fig. 3 is a horizontal section on lines 3 3, Fig. 1. Fig. 4 is a plan of the base-section, the top plate removed 20 from one side to show partition. Fig. 5 is a vertical section, partly in elevation, showing usual position and relation of parts when the stove is in use as a downdraft-stove.

A indicates the bottom chamber of the stove, 25 below the ash-box. This chamber is preferably rectangular, with flat top and bottom, and is divided by partitions  $a$   $a$ , extending from top to bottom of the chamber and extending forward from the back plate, say, 30 about two-thirds of the distance to the front plate. A rear pocket or recess  $a'$  connects with the up-flue B. Openings  $a^2$  through the top plate of chamber A permit the passage of gases in downward direction to the spaces  $a^3$  35 outside the partitions in chamber A, and the gases, when the damper is turned to down-draft, take the general direction indicated by arrows in Fig. 5.

The ash-box C has any usual ash-receptacle 40 therein. At each side of the main compartment C and in rear of the middle there is a downdraft-flue c. These downdraft-flues communicate with the passages  $a^2$  in the base-chamber. As the flues c are near the rear 45 corners of the ash-box they leave room for an ash-pan to be entered from the front and to extend between these flues c nearly to the full width of the ash-box C.

Above the ash-box C the fire-pot D is arranged. 50 This fire-pot is preferably a metallic casing having grated passages  $d$  through the side walls, preferably at each side, in rear

of the middle of the fire-pot. Outside the fire-pot are downdraft-flues  $d'$ , closed at the top and having hoods which cover the openings  $d$  in the fire-pot. These outer downdraft-flues may be cast with the fire-pot or may be cast or otherwise formed separately and attached in usual manner. The downdraft-flues  $d'$  lie close against the fire-pot, 60 which fire-pot itself forms the inner wall of these down-flues as far down as the body of the fire-pot extends. Below the fire-pot these downdraft flues or tubes are flattened or substantially concavo-convex in cross-section, as 65 indicated in Figs. 2 and 3. The openings  $d$  in the fire-pot are small enough to prevent the passage of coal of the size adapted to the stove. When the damper is turned to cause downdraft, such draft will be through the 70 openings  $d$ , through down-flues  $d'$  and c and openings  $a^2$  to the flue-passages  $a^3$ , thence to the central part of chamber A, and so to the up-pipe B.

The main body of the air to support combustion when the damper F is turned to cause downdraft enters through the opening L in the top of the stove and passing through the telescopic passage or tube K' K, which is preferably then elongated, enters the body of the 75 coal at the top. If some small quantity of air enters the bottom of the coal through the grate, this is practically a negligible quantity. The ash-pit door can be regulated to exclude any considerable entrance of air at 80 the bottom, as in many stoves of usual construction.

The direct draft of the stove will be as usual in heating-stoves—upward from the fire-pot to smoke-flue E and so up through pipe B'. 90 This is the natural course of draft when damper F is turned down, as in Fig. 1. In that position the damper closes the flue B, and thus prevents a downdraft.

When the stove acts as an updraft-stove, 95 the openings L in the top will be closed and the telescopic tube-section K may be drawn up, as in Fig. 1, or the same may act as a reservoir.

When the damper F is turned upward to 100 the dotted position, Fig. 1, it shuts off passage E and opens passage B. This causes the gases to pass out the holes  $d$  in the fire-pot and so downward to the lower chamber, then

forward and again rearward and up pipe B to the escape B'.

5 A telescopic downdraft-tube K is preferably arranged above the central part of the fire-pot. When the damper is turned to "downdraft," this tube K may be extended downwardly nearly to the level of the top of the fire-pot, as indicated in dotted lines, Fig. 1, and the air may then be taken in at the 10 grating L above the telescopic tube.

15 The air, whether taken in at grating L or otherwise admitted to the chamber above the fire-pot, will when the damper is turned to downdraft pass through the burning coal to the level of the side openings in the fire-pot, then through such openings, and so down the 20 downdraft-flues, as has been explained.

25 The tube-section K may be held in adjusted position on the inner tube L by friction or in other usual manner as is common in magazine-stoves. While burning coal adapted to such uses, the tube K K' may be used as a magazine. In such case the air fed to the fire when the stove is acting as a downdraft-stove may enter through opening M in the 30 stove-top or in other convenient way.

35 This stove may be readily adapted to burn either hard or soft coal, the arrangements for air supply and draft permitting wide diversity in the matter of combustion.

What I claim is—

1. In a heating-stove, the fire-pot having openings at its sides below the top thereof, and draft-flue casings resting against the sides 35 of the fire-pot and forming with the fire-pot downdraft-flues beginning below the top of the fire-pot and extending downward to the base of the stove, the designated elements and their necessary adjuncts in combination 40 to coöperate, substantially as described.

2. In a heating-stove, the combination of the fire-pot having grated side openings below its top, and draft-flue casings resting against the fire-pot and forming the top and 45 outer covering of the downdraft-flues, said flues having downward extensions through the ash-pit and opening into the base of the stove, substantially as described.

3. In a heating-stove, the combination of 50 the fire-pot having openings at each side and near the rear part of the stove, casings over these openings forming with the fire-pot down-

draft-flues, which flues are continued in the form of flattened or concavo-convex pipes down through the ash-box and near the rear 55 corners thereof, said flues opening into the lower chamber of the stove near the rear corners thereof, substantially as described.

4. In a heating-stove, the combination of a fire-pot with openings below its top and down- 60 draft-flues extending from said openings down through the ash-pit and into the base of the stove, and a telescopic air-supply tube extending from the top of the stove down nearly to the top of the fire-pot, said air-tube 65 having air-supply openings at its upper end, substantially as described.

5. In a heating-stove, a fire-pot having side 70 openings at each side and below the top thereof, a downdraft-flue cover at each side of the fire-pot, the flue formed by said cover and fire-pot body being closed at its top below the top of the fire-pot, opening downward and covering said fire-pot openings, down-flues leading from said fire-pot flues into the base-chamber of the stove, side flues leading forward and a central flue leading backward in said base, and a pipe leading up from the central base-flue to the chimney, all combined 75 substantially as described.

6. In a heating-stove, a fire-pot having a grated passage in its side walls, a downdraft-flue, closed at its top, and attached to the fire-pot at its edges at the sides of said passage, so as to receive the gases which pass through 85 said grating, a down-flue forming a continuation of said down-flue on the fire-pot, and means for supplying air for combustion at the top of the fire-pot, all combined.

7. In a heating-stove, the fire-pot having 90 side openings, down-flues connected to said side openings below the top of the fire-pot, and a damper controlling gas-escape from the down-flue, an extensible telescopic air-pipe leading from the top of the stove to near the top of the fire-pot, and a grating at the top of said air-pipe, all combined.

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

CHARLES C. PFEIFFER.

Witnesses:

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G. W. BUCK.