

No. 694,712.

Patented Mar. 4, 1902.

H. E. ATTEBERRY.
STOVE.

(Application filed June 13, 1901.)

(No Model.)

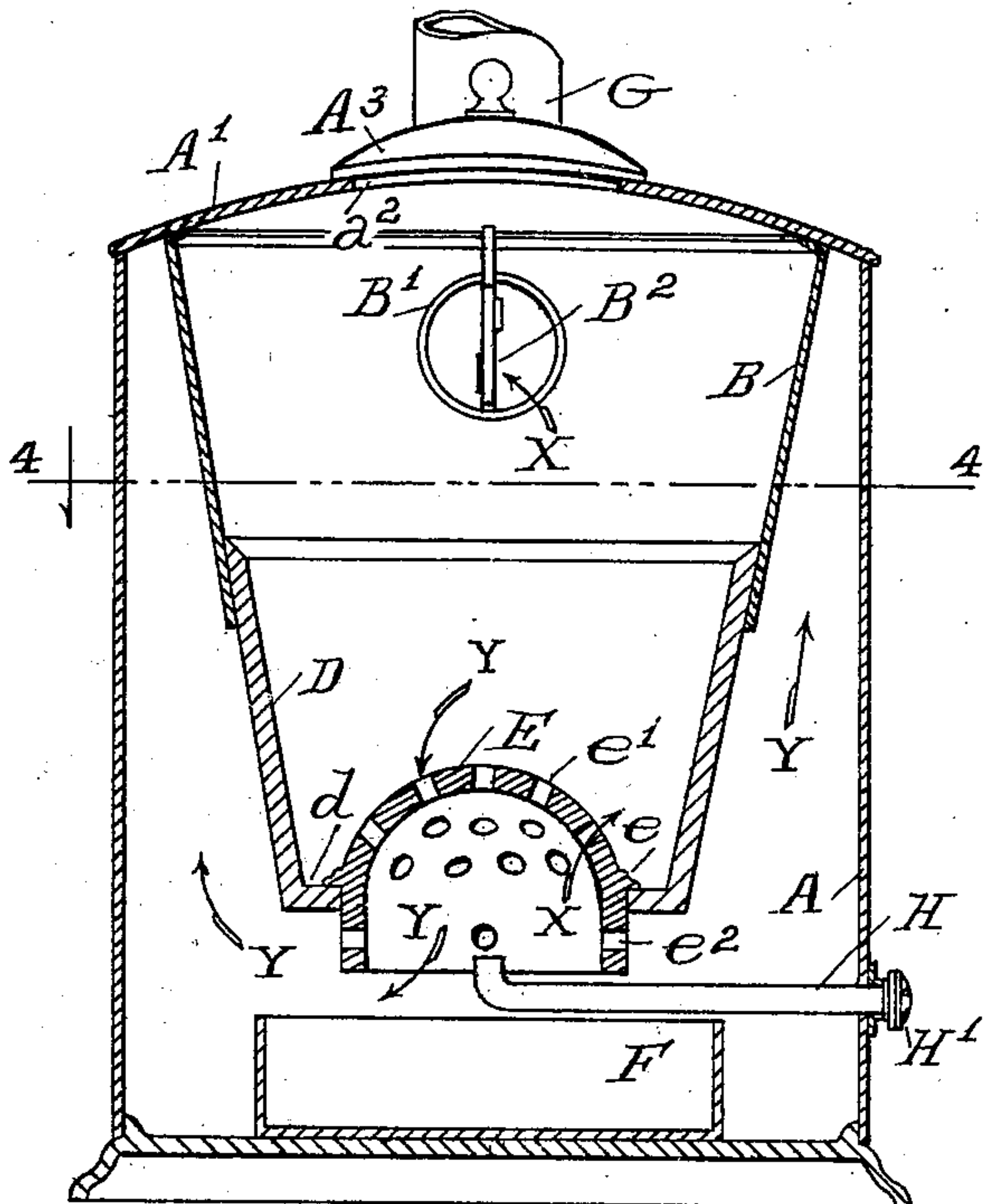


FIG. 2.

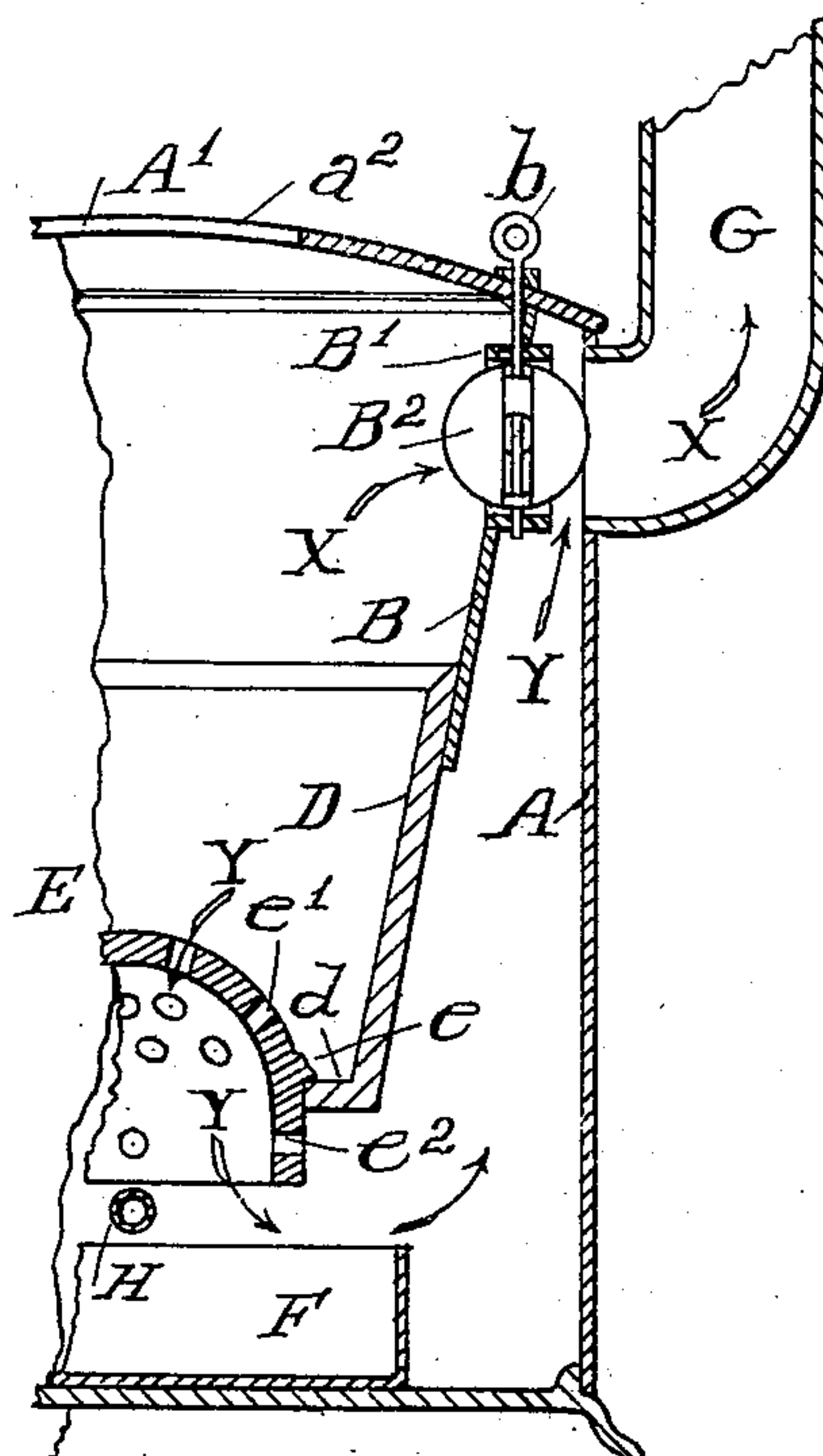


FIG. 3.

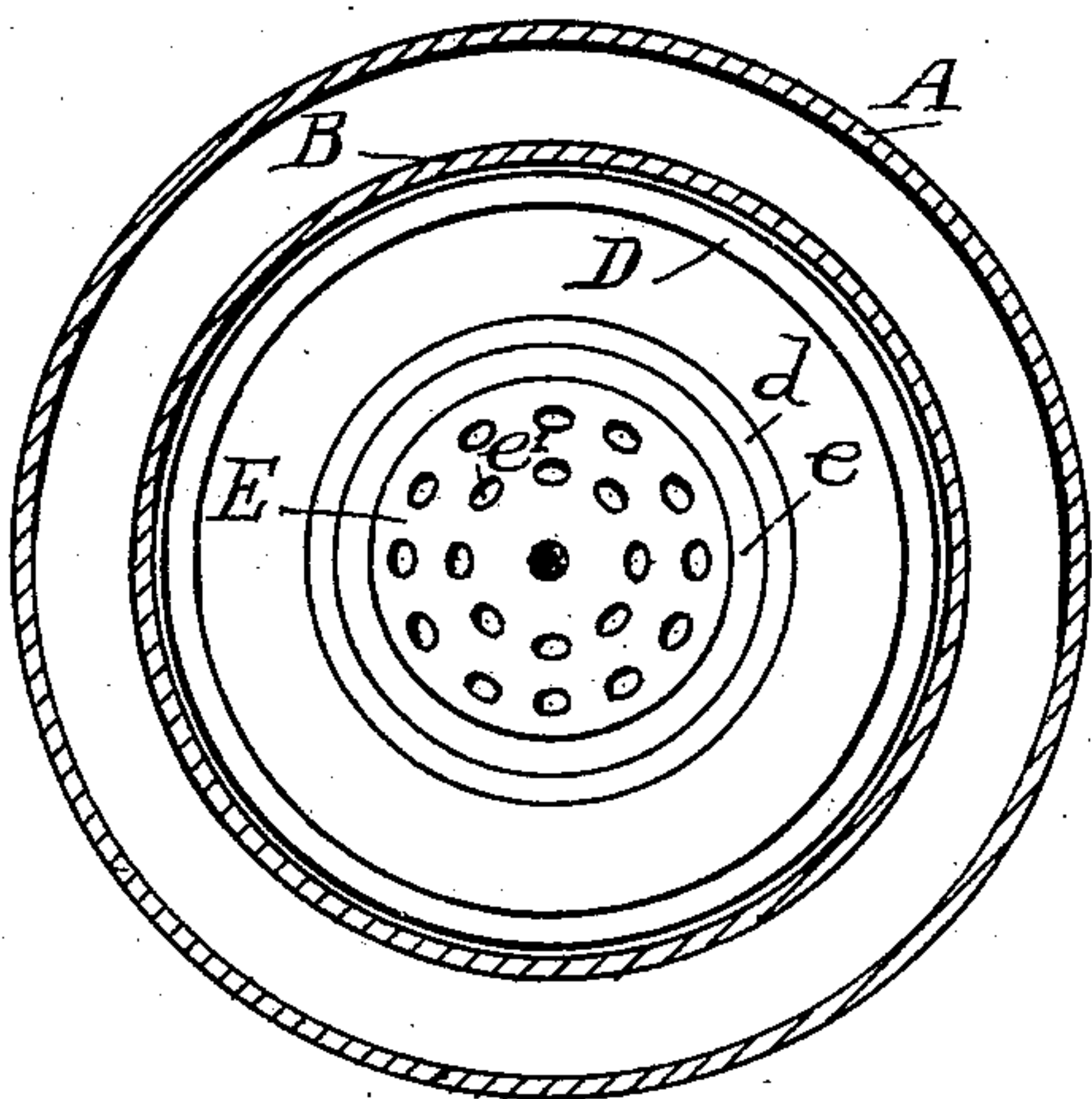


FIG. 4.

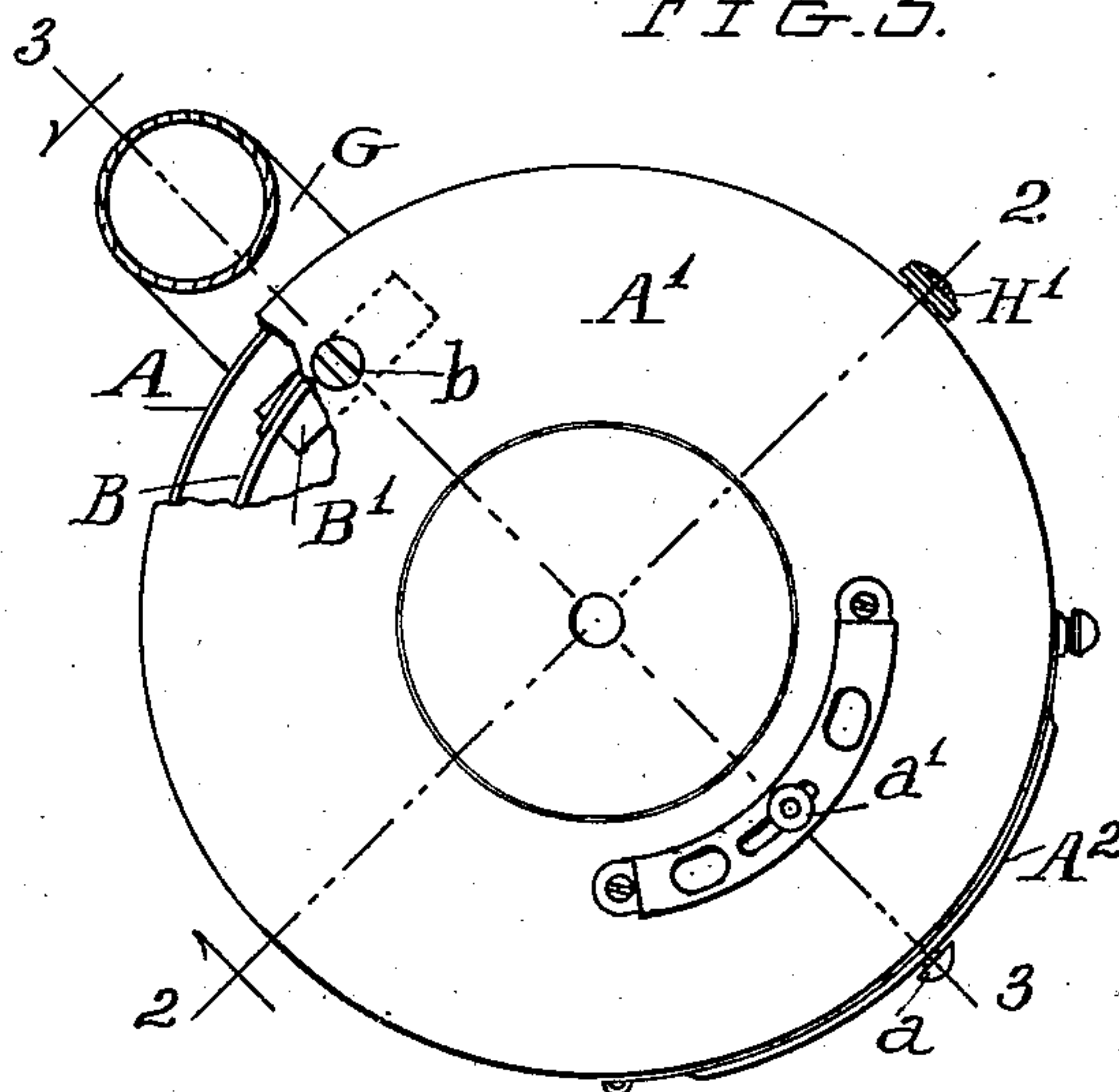


FIG. 1.

Witnesses.
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UNITED STATES PATENT OFFICE.

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STOVE.

SPECIFICATION forming part of Letters Patent No. 694,712, dated March 4, 1902.

Application filed June 13, 1901. Serial No. 64,430. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. ATTEBERRY, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented certain new and useful Improvements in Stoves, of which the following is such a full, clear, and exact description as will enable others skilled in the art to which it appertains to make and use my said invention.

My invention relates to stoves of that type known as "downdraft-stoves."

The purposes of my invention are to provide a downdraft-stove of novel and improved construction in which the draft shall be centralized through and under the fire-pot, to provide a grate of novel and improved construction, to provide simple and effective means for changing the draft of the stove from downdraft to direct draft, and to provide simple and effective means to prevent overheating or burning of the grate.

With these ends in view my invention consists in the novel features of construction and combinations of parts shown in the annexed drawings, to which reference is hereby made and hereinafter particularly described, and finally recited in the claims.

Referring to the drawings, Figure 1 is a top plan of a stove embodying my improvements. Fig. 2 is a vertical longitudinal section through the stove on the line 2 2 of Fig. 1. Fig. 3 is a vertical longitudinal section through the stove on the line 3 3 of Fig. 1, and Fig. 4 is a horizontal transverse section on the line 4 4 of Fig. 2.

Similar letters of reference designate like parts in all of the views.

The outer shell A is preferably cylindrical in form and is made of sheet-steel or other suitable material and is surmounted by a concavo-convex top A' of like material. The downwardly-tapering inner shell B is concentric with the shell A and is supported in any suitable manner on the top A'.

The downwardly-tapering fire-pot D is preferably made of fire-clay in a single piece without perforations and nests within and is supported by the inner shell B, substantially as shown. By reason of the tapering form of the inner shell and the fire-pot no securing de-

vice is required to keep the fire-pot in place in the shell and the fire-pot may be easily lifted out through the upper end of the shell. At the lower extremity of the fire-pot is an inwardly-extending annular imperforate ledge *d*, on which the grate is mounted, as hereinafter explained.

The grate E is preferably made of cast-iron, but other suitable material may be employed, and has a circumferential ledge *e*, which rests on top of the ledge *d* when the grate is in position in the fire-pot. The part of the grate above the ledge *e* is preferably dome-shaped, as shown in the drawings, and its upper part is pierced by a number of perforations *e'*, through which air passes inward into the interior of the grate when the stove is used as a downdraft-stove and through which air passes upward into the fire-pot when the stove is used as a direct-draft stove. The central part of the grate immediately above the ledge is imperforate and in conjunction with the inner wall of the fire-box forms a pocket in which when the stove is in use ashes accumulate on top of the ledges and seal the joint between the grate and the fire-pot, so as to effectually prevent any draft except through the central air-chamber of the grate, thus centralizing the combustion of the fuel and preventing the burning away of the outer edge of the mass of fuel contained in the fire-pot. The part of the grate below the ledge *e* is cylindrical in form and is pierced by holes *e''*, through which a poker or other suitable instrument may be inserted and used to oscillate the fire-pot on the ledge *d*, so as to shake down the ashes. A door A² of suitable dimensions is mounted on the shell A and is provided with a damper *a*, controlling the admission of air below the fire-pot. A suitable ash-pan F lies under the grate E and may be inserted or removed through the door A².

A short pipe B' is secured in any suitable manner to the shell B and extends only part way across the space between the shell B and the shell A, so as to allow air-currents to pass between the shells without material obstruction by the pipe. A damper B², mounted within the pipe B', is operated by a handle *b* on the damper-stem. The smoke-pipe G is secured in any suitable manner to the shell

A in line with the pipe b' , so that when the damper B^2 is open there will be direct communication between the pipes B' and G .

A pipe H extends inwardly through the shell A and is secured thereto in any suitable manner. The inner end of the pipe H is turned upward and lies centrally under the fire-pot. At the outer end of the pipe H is a damper H' , controlling the admission of air through the pipe. The purpose of the pipe H is to admit air into the dome-space of the grate in sufficient quantity to prevent overheating of the grate, and yet not enough to impair the heating quality of the stove.

The top A' has a central opening a^2 , through which coal may be deposited and through which the grate may be removed from the fire-pot. A cover A^3 fits in the opening a^2 . A sliding damper a' controls the admission of air to the inner shell B .

The operation of the stove is as follows: When first starting the fire, kindling and fuel are placed within the fire-pot and on top of the grate E . The damper B^2 is then turned so as to permit upward draft through the grate, through the pipe B' , and through the pipe G , as indicated by arrows X . After the fire is started the damper B^2 is turned to close the pipe B' and the damper a' is opened to admit air into the inner shell B . The draft is then downward through the shell B , through the fuel in the fire-pot D , through the perforations e' into the dome of the fire-pot, and thence upward between the shells A and B and out through the pipe G , as clearly indicated by arrows Y . The dampers a' and H' are then set to admit the proper supply of air, and the fire will continue to burn without further attention so long as the supply of fuel lasts. When it is desired to shake down the ashes, the door A^2 is opened and a poker or other suitable instrument is inserted through opposite holes e^2 in the lower part of the grate and is moved to and fro; so as to oscillate the grate on the ledge d in such manner as to cause the ashes accumulated on the grate to fall through the perforations e into the ash-pan F .

It will be observed that when the stove is used as a downdraft-stove all the downward currents of air are centralized within the dome of the grate and thence spread out into the space between the shells A and B and that there are no openings through the fire-pot communicating with the space between

the shells through which currents of air admitted into the lower part of the stove, either through the door or through crevices in the outer shell, might pass inward into the fire-pot in such manner as to counteract the downward currents and impair the downdraft of the stove. This feature is of great practical advantage and distinguishes my invention from any or all of the downdraft-stoves heretofore used.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a stove, a grate having a perforated dome-shaped upper part, a central air-chamber and an imperforate central part provided with an imperforate circumferential ledge; in combination with an outer shell, an inner shell and an imperforate fire-pot supported on said inner shell and having an internal imperforate ledge on which said grate is supported, as set forth.

2. In a stove, a grate having a dome-shaped upper part, a central air-chamber, a middle part provided with a circumferential ledge and an extension below said ledge adapted to receive an instrument by which the grate may be oscillated on its support; in combination with an outer shell, an inner shell and a fire-pot supported on said inner shell and having an internal ledge on which said grate is turnable, as set forth.

3. In a stove the combination of an outer shell having a smoke-outlet, a downwardly-tapering inner shell having an opening in juxtaposition to said smoke-outlet, a damper in the opening of the inner shell, a downwardly-tapering imperforate fire-pot nesting in said inner shell and having an internal imperforate ledge and a perforated dome-shaped grate having a central air-chamber, also having a circumferential ledge seating on the ledge in the fire-pot, the downward communication between said fire-pot and the space between said shells being solely through the central air-chamber of said grate, as set forth.

In witness whereof I have hereunto subscribed my name, at Springfield, Illinois, this 1st day of April, 1901.

HENRY E. ATTEBERRY.

Witnesses:

ANNIE A. DAY,
R. H. DOOLING.