

(No Model.)

2 Sheets—Sheet 1.

J. H. BROWN.
STOVE.

No. 386,914.

Patented July 31, 1888.

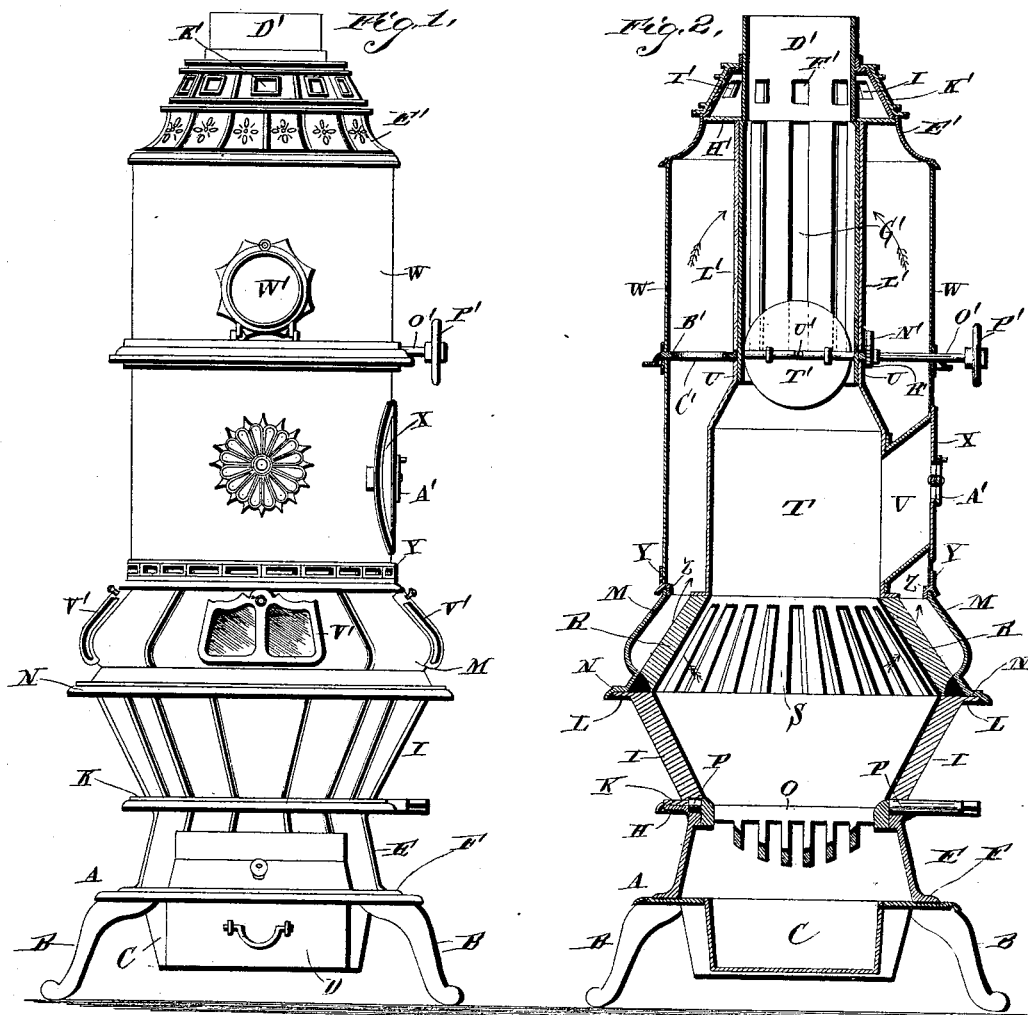
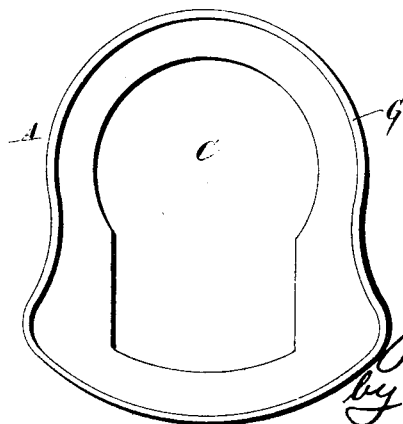


Fig. 5.



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Fig. 3.

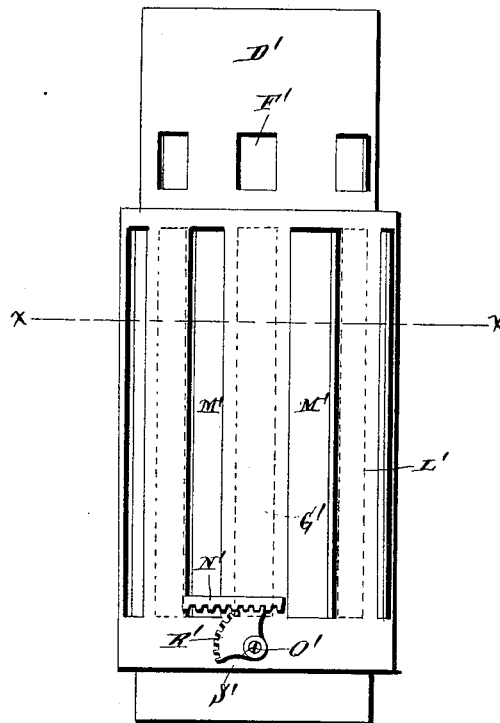
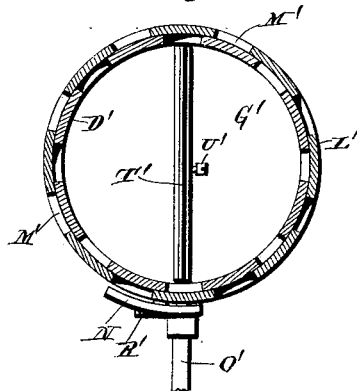


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES HENRY BROWN, OF VERNON, ILLINOIS.

STOVE.

SPECIFICATION forming part of Letters Patent No. 386,914, dated July 31, 1888.

Application filed October 18, 1887. Serial No. 252,739. (No model.)

To all whom it may concern:

Be it known that I, JAMES HENRY BROWN, a citizen of the United States, residing at Vernon, in the county of Marion and State of Illinois, have invented a new and useful Improvement in Stoves, of which the following is a specification.

My invention relates to an improvement in heating-stoves; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is an elevation of a heating-stove embodying my improvements. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a detached elevation of the cylinders. Fig. 4 is a horizontal sectional view taken on the line *xx* of Fig. 3. Fig. 5 is a detailed top plan view of the base.

A represents the base of the stove, which is of the form shown in Fig. 5, is supported upon suitable feet, B, in the usual manner, and is provided with an ash-pit, C, adapted to receive a slide or drawer, D, into which the ashes drop from the grate.

E represents an annular casting having a flange, F, at its lower edge, which rests upon the base A and engages a flange, G, at the outer edge of the base, and is thereby retained in position on the base. The upper edge of the annular casting E is provided with a horizontal outwardly-projecting flange, H.

I represents the fire-pot, which is shaped as shown, is corrugated on its inner side, and is provided at its lower edge with a flange, K, that bears upon the flange H. The upper side of the fire-pot is of much greater diameter than the lower side thereof, and is provided with a flange, L.

M represents a casting which forms part of the outer casing of the stove, and is provided at its lower edge with a flange, N, which fits down over the flange L, and thereby secures the said casting on the upper edge of the fire-pot.

O represents a concavo-convex basket-grate provided with trunnions P at diametrically-opposite points, which trunnions are journaled in suitable openings or recesses made in the casting E, and thereby the grate is adapted to be oscillated so as to shake the fire or to be entirely turned over, so as to discharge its con-

tents into the ash-pit. One of the lugs P is extended and has its outer end squared, and thereby adapted to fit a similarly-shaped opening in a suitable handle, (not shown,) by means of which the grate may be shaken or overturned.

R represents a cap or casting, which forms the frustum of a cone and has its lower edge resting on the upper edge of the fire-pot. The said cap or casting is provided with a series of grate-bars, S, openings being formed between the said grate-bars, as shown. On the upper edge of this cap or upper grate is supported the lower edge of a drum, T, which is cylindrical in shape and has its upper end contracted to form a neck, U. From one side of the drum extends an upwardly-inclined short tube, V, the outer end of which extends through an opening in the side of the upper casing, W, of the stove, and is provided with a door, X. The said upper casing, W, has its lower edge arranged in an annular collar, Y, which collar has an annular flange, Z, on its under side to receive the upper edge of the casting M. In the center of the door X is a damper, A', which is adapted to admit air through the tube V into the drum above the fire.

B' represents a plate or diaphragm, which is arranged horizontally in the casing W, near the center of the same, bears upon the upper edge of the neck U of the drum T, is provided with a central opening which is coincident with the said neck, and is further provided with a series of openings, C', whereby the upward motion of the products of combustion through the stove will be unimpeded.

D' represents an inner cylinder, which is of suitable length and diameter, has its lower end secured to the plate or diaphragm B', and inserted in the neck of the drum T. The upper end of this cylinder is slightly reduced in diameter, extends through the cap or top E' of the stove, and is provided with a series of openings, F'.

G' represents a series of vertical openings which are made in the cylinder D' and extend from the plate or diaphragm B' to the reduced neck of the cylinder.

A diaphragm, H', is arranged horizontally in the cap E' of the stove, forms an air-chamber in the upper end thereof, is provided with

a central opening through which the reduced neck of the cylinder D' passes, and bears upon the annular shoulder formed in the said cylinder at the base of the said neck. The upper portion of the cap E' of the stove is provided with a series of openings, I', and a damper, K', is placed in the said upper portion of the cap, and is provided with openings which are adapted to align with the openings I'.

L' represents a cylinder which fits on the outer side of the cylinder D', is adapted to turn thereon, and extends from the diaphragm H' through the diaphragm B'. This cylinder L' is provided with a series of vertical openings, M', which are equal in size to the openings G' of the cylinder D'. On one side of the cylinder L', near the lower end thereof, is formed a series of horizontal rack-teeth, N'.

O' represents a transverse shaft which is journaled in openings near the lower end of the cylinder D', passes through the slotted opening in the lower end of the cylinder L', and passes through one side of the casing W, and is provided with a wheel or handle, P', by means of which it may be turned. To this shaft is secured a spurred segment, R', by means of a set-screw, S', the said segment engaging the rack-teeth N' of the outer cylinder.

T' represents a damper which is arranged in the lower end of the inner cylinder, D', and is secured to the shaft O' by means of a set-screw, U'.

The operation of my invention is as follows: The fuel is fed to the fire-pot through the tube V and the drum T, and a sufficient quantity of fuel may be placed in the stove when the fire is started to reach to the level of the bottom of the door X. When the damper T' is open, as shown in Fig. 2, the cylinder L' is turned on the inner cylinder, D', so that the openings in the said cylinders are closed, and the products of combustion then pass from the fire directly up through the opening, through the drum T, and through the inner cylinder, D', as will be readily understood. When the shaft O' is turned to the right, the segment R', by meshing with the rack-teeth N', causes the cylinder L' to partly revolve on the inner cylinder, D', so as to bring its opening M' into coincidence with the openings G' of the inner cylinder, and the damper T' is closed to a horizontal position in the lower end of the inner cylinder, D'. When thus arranged, the draft passes outward through the spaces between the bars of the upper grate, R, into the annular space between the casing W and the drum T, and the smoke, heat, and products of combustion pass from the upper portion of the casing W, through the openings M' and G', into the inner cylinder, D', and from thence upward through the same. When thus arranged, the outer shell or casing of the stove becomes heated to a maximum degree, and consequently the stove is caused to radiate a maximum amount of heat by opening the damper A'. When the cylinders and the damper T' are in the position just described, a

quantity of fresh air is admitted to the drum T above the fire, and is drawn downward through the fire by the draft which ascends in the outer casing of the stove, thereby promoting combustion and causing the fuel to be entirely consumed.

When it is desired that the fuel shall burn slowly and without casting out a maximum degree of heat, the damper A' is closed and the damper K' is opened, so as to uncover the openings I' in the top of the stove and permit fresh air to enter the upper portion of the inner cylinder, D', through the openings E', and thereby reduce the draft, as will be readily understood.

In the casing M are a number of openings covered by doors V', which are provided with sheets of isinglass in the usual manner, which doors are adapted to be opened to enable a poker to be inserted between the bars of the upper grate, R, for the purpose of stirring the fire when necessary. In the front side of the stove-casing W, at a suitable distance from the upper end thereof, is an opening, which is covered by a hinged door, W', which door may be opened when desired, to permit the cylinders and the operating mechanism therefor to be inspected.

Having thus described my invention, I claim—

1. The combination of the cylinder D', having the opening G', the cylinder L', mounted on the cylinder D' and having openings M', adapted to register with the openings G', the rack-teeth N' on the cylinder L' near its lower end, and the shaft O', journaled in the lower end of the cylinder D' and provided with a spurred segment, R', engaging the rack-teeth N', as set forth.

2. The combination of the cap E, having the horizontal partition H' and the openings I' above said partition, the cylinder D', extending through the partition and above the cap and having the openings F', and the damper K', adapted to close the openings I', as set forth.

3. The combination of the drum T, the cylinder D', resting thereon and having vertical openings, and the cylinder L', surrounding the cylinder D' and rotating thereon, and provided with vertical openings adapted to register with the openings in the said cylinder D', as set forth.

4. In a stove, the cylinder D', arranged within the outer casing, extending through the top of the stove, and having the openings G', in combination with the outer cylinder, L', arranged on the cylinder D', adapted to turn thereon, and having the openings adapted to register with the openings G', and the damper T', arranged in the cylinder D' below the said openings, substantially as described.

5. In a stove, the cylinder D', arranged within the outer casing and having the openings G', in combination with the outer cylinder, L', arranged on the cylinder D', adapted to turn thereon, and having the openings

adapted to register with the openings G', and the shaft U', geared to the cylinder L', and having the damper T' arranged in the cylinder D', for the purpose set forth, substantially as
5 described.

6. The stove having the upper grate or cap, R, arranged on the fire-pot and within the outer casing, the drum T, rising from the said cap or upper grate, the damper A', communicating with said drum, the cylinder D', extending from the drum and through which the products of combustion escape, said cylin-
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der having the openings G', the cylinder L', having the openings adapted to open or close the openings G', and the damper T', arranged in the cylinder below the openings, substantially as described. 15

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JAMES HENRY BROWN.

Witnesses:

ROBERT N. NORRIS,

FRANCIS MARION SMITH.