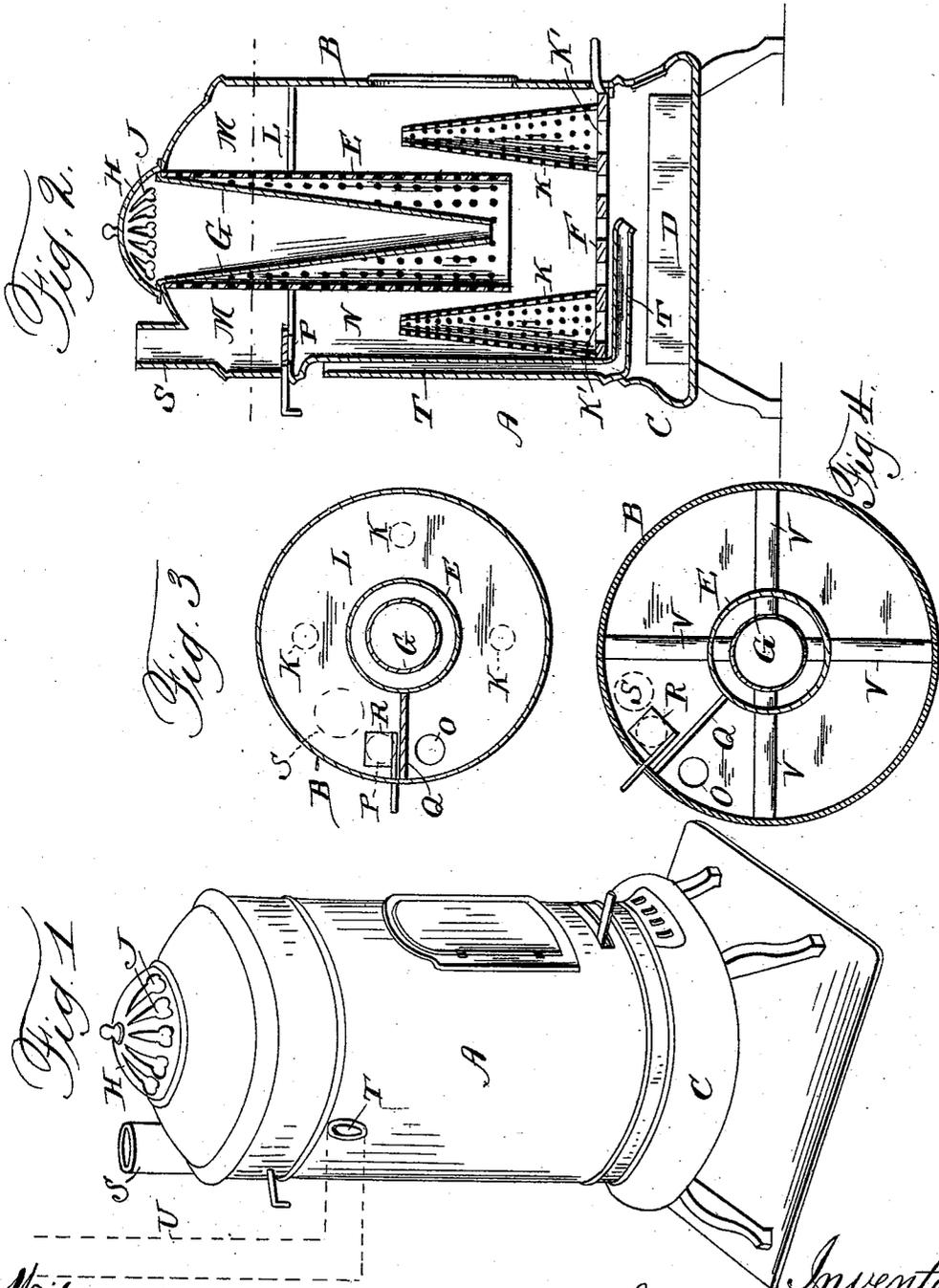


(No Model.)

J. LYONS.
STOVE OR FURNACE.

No. 537,054.

Patented Apr. 9, 1895.



Witnesses:-
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UNITED STATES PATENT OFFICE.

JAMES LYONS, OF DUBUQUE, IOWA.

STOVE OR FURNACE.

SPECIFICATION forming part of Letters Patent No. 537,054, dated April 9, 1895.

Application filed April 13, 1894. Serial No. 507,402. (No model.)

To all whom it may concern:

Be it known that I, JAMES LYONS, a citizen of the United States, residing at Dubuque, in the county of Dubuque and State of Iowa, have
5 invented certain new and useful Improvements in Stoves; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to
10 make and use the same.

My invention has relation to heating stoves, the primary object in view being to provide a stove whereby a more perfect combustion of the fuel is obtained and the gases, soot and
15 smoke usually produced in stoves, entirely or substantially consumed, whereby I effect a great saving of fuel.

A further object of my invention is to provide a stove whereby a thorough and perfect
20 ventilation of the room may be obtained.

Other objects and advantages of my invention will appear hereinafter, and with the various objects in view the invention consists in the novel construction, arrangement and com-
25 bination of parts as hereinafter fully described, illustrated in the drawings and pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a stove embodying my invention. Fig.
30 2 is a vertical section thereof. Fig. 3 is a horizontal section on line $x-x$; Fig. 4, a similar view of a slightly modified construction of stove.

My invention is adapted to be utilized in
35 the construction of heating stoves using either soft or hard coal for fuel and in the drawings I have illustrated a construction of heating stove whereby perfect combustion of all gases, soot and smoke is obtained and in order that
40 my invention may be clearly understood I will proceed to describe the same in detail reference being had more particularly to Figs. 1, 2, 3 and 4.

A indicates a stove embodying my invention, said stove having the exterior shell or casing B, which is supported upon a base C,
45 mounted on suitable legs. Within the base is a suitable ash pan D.

Centrally arranged within the stove is a perforated open ended cylinder E which extends
50 from the apex or upper end of the stove to a

point adjacent to the lower end of the casing and grate F.

Within the cylinder E is arranged a cone G, the lower or small end of which terminates
55 within the cylinder E and adjacent to the lower end of the latter.

H indicates a dome or cover which is adapted to close the upper ends of the cylinder and cone and is provided with a number of perforations J to permit air from the room entering
60 the stove to promote the combustion as presently described.

Within the lower portion of the stove are arranged several perforated cones K which set
65 immediately over openings K' of the grate and are open at both ends. The cones K are arranged with their small ends uppermost and terminate somewhat above the lower end of the cylinder E.

Within the upper portion of the stove I arrange a horizontal partition L which thus forms an upper chamber M and the lower or combustion chamber N. The partition L is provided with an opening O, and also with a
75 similar opening P adjacent to opening O, said openings being separated by means of a partition Q arranged vertically within the upper chamber M. The opening P is provided with
80 a suitable damper R and a smoke pipe S communicates with the chamber M, at a point adjacent to the opening P.

T indicates a flue or passage provided in the stove and having its discharge end immediately beneath the grate, said flue T serving
85 to conduct air from the room to the fire on the grate, which air becomes heated in traversing the flue. Thus additional ventilation is afforded for the room.

A pipe U may be provided as seen in dotted lines Fig. 1 which may lead from an upper
90 room to the inlet end of flue T and thus ventilate said upper room.

Instead of introducing the air from within the room through a perforated cover H, I may
95 employ a closed cover and provide a number of horizontally arranged pipes V leading from the outside of the stove to the interior of the cylinder and cone as seen in Fig. 4. I however prefer the first described construction.

When the stove is in use the vitiated air
100 within the room will enter the openings of

cover H (as in Figs. 2 and 3) or the pipes V (as in Fig. 4) and descend through the cone and issuing from the lower end thereof comes in contact with the burning fuel increasing the combustion thereof and also passes through the perforations in the cylinder E into the fire chamber N and by this means causes the consumption of practically all the gases, soot and smoke, and the damper to opening P having previously been closed any unconsumed particles of soot or gases and smoke will pass through the opening O, and owing to the arrangement of partition Q are caused to travel around the cylinder and in their passage they become highly heated and are practically consumed.

If desired the damper R may be opened to thus provide a direct draft for the products of combustion to the pipe S. It will also be seen that the heated air entering below the grate from flue T passes up through the grate and through the cones thereon and the fuel surrounding them and causes the gases, soot and smoke to be consumed.

What I claim, and desire to secure by Letters Patent, is—

1. In a stove, the combination with the shell or casing thereof, and the grate, of a perforated cylinder arranged vertically within the casing and extending from the top thereof to a point somewhat above the grate, a cone arranged within said cylinder, and having its lower end adjacent to the lower end of the latter, air ducts or openings leading into the upper end of the cone, a horizontal partition dividing the interior of the casing into two chambers, a vertically arranged partition in the upper chamber, an opening in said horizontal partition on one side of the vertical partition and a smoke pipe coming within the said upper chamber, for the purpose specified.

2. In a stove, the combination with the shell

or casing thereof, and the grate, of a perforated cylinder arranged vertically within the casing and extending from the top to a point somewhat above the grate, a cone arranged within said cylinder and having its lower end adjacent to the lower end of the latter, air ducts or openings leading into the upper end of the cone, a horizontal partition dividing the interior of the casing into two chambers, a vertically arranged partition in the upper chamber, openings in the said horizontal partition on opposite sides of the vertical partition, a damper for one of said openings and a smoke pipe communicating with the said upper chamber, for the purpose specified.

3. In a stove, the combination with the shell or casing thereof and the grate, of a perforated cylinder arranged vertically within the casing and extending from the top to a point somewhat above the grate, a cone arranged within the said cylinder and having its lower end adjacent to the lower end of the cylinder, air ducts or openings leading into the upper end of the cone, and horizontal partitions within the casing and dividing the latter into two chambers a vertical partition arranged within the upper chamber, openings in said horizontal partition on opposite sides of the vertical partition, one of said openings being provided with a damper, a smoke pipe connecting with said upper chamber an air duct or passage arranged along one side of the casing and leading from the outside of the stove and discharging beneath the grate, and perforated cones arranged above the grate and extending somewhat above the latter.

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

JAMES LYONS.

Witnesses:

JAMES MAISTER,
ALEX SIMPLOT.