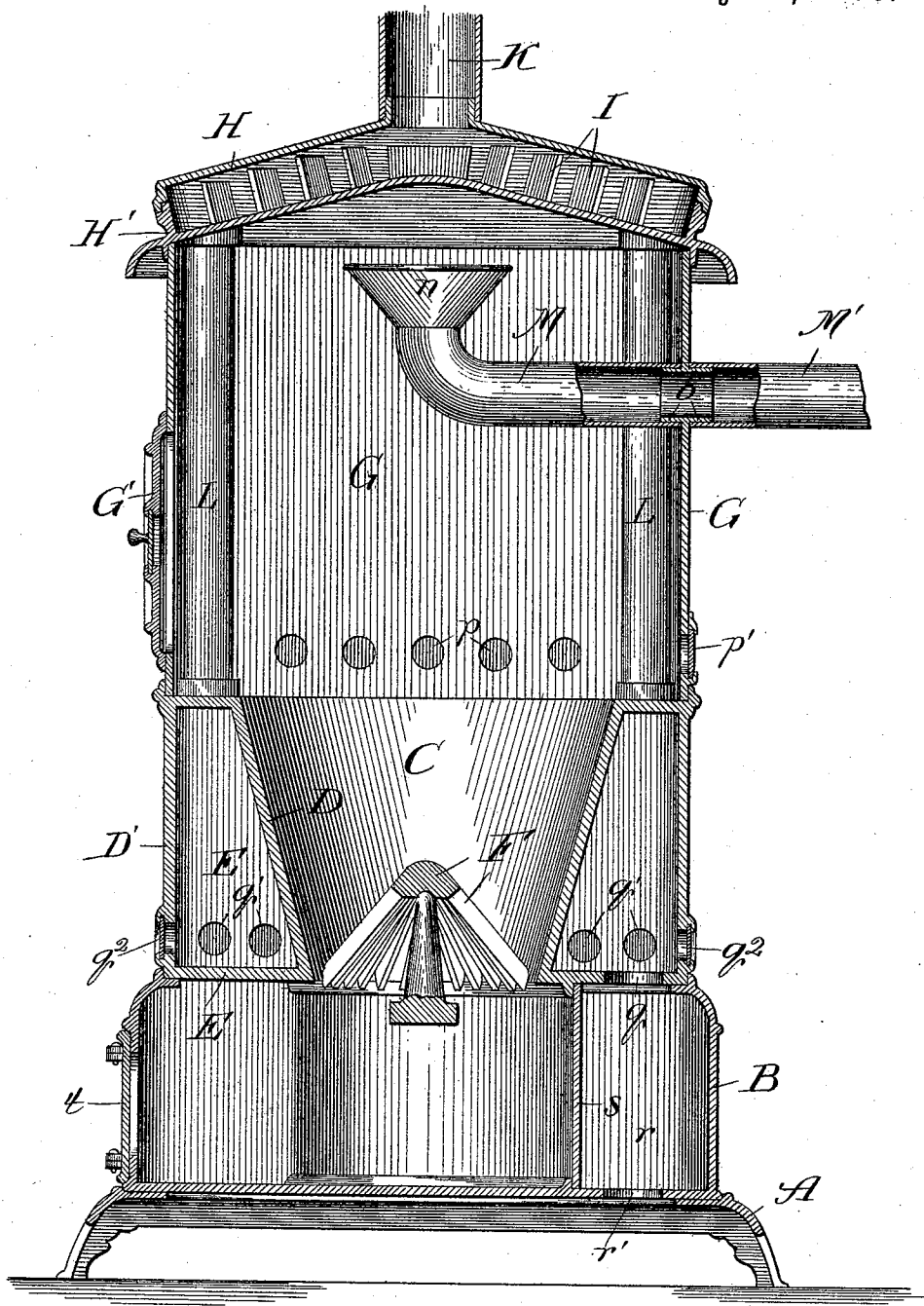


(No Model.)

L. P. CONVERSE.
AIR HEATING STOVE.

No. 498,460.

Patented May 30, 1893.



Witnesses:
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UNITED STATES PATENT OFFICE.

LYMAN P. CONVERSE, OF CHICAGO, ILLINOIS.

AIR-HEATING STOVE.

SPECIFICATION forming part of Letters Patent No. 498,460, dated May 30, 1893.

Application filed April 5, 1892. Serial No. 427,859. (No model.)

To all whom it may concern:

Be it known that I, LYMAN P. CONVERSE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Air-Heating Stoves, of which the following is a specification.

My invention relates to an improvement in air heating stoves of the kind especially adapted for domestic use, and is more particularly directed to increasing the capacity of the apparatus and the simplicity of the arrangement of parts.

The object of my invention is, furthermore, to effect an improvement in the capabilities of stoves of this nature to produce substantially complete combustion of bituminous coal, and also to provide for obtaining a centrally located discharge of the products of combustion with a chimney extending out of one side of the stove.

To these ends my invention consists in the general and specific details of construction hereinafter fully set forth and claimed.

In the drawing is illustrated in vertical, central sectional elevation a heating stove provided with my improvements.

A represents the base of the stove, upon which is supported the ash-pit B having a door *b*. The ash-pit is divided into two chambers by a wall *s*, the chamber *r* thus afforded between the partition wall and the outer wall continuing around the ash-pit and terminating at each end at the door. At suitable points the base of the chamber *r* is perforated to provide air openings, as indicated at *r'*. Upon the ash-pit is supported a fire-box C formed with a double wall D D' in a single casting to produce a chamber E. The walls D converge downward to the grate F, the base E' of the chamber being perforated to provide air openings *q* corresponding with the opening *r'* and the outer wall D' is also perforated as indicated at *q'* to afford openings controlled by a damper *q*² leading directly from the chamber E to the outer air.

The grate F is in the form of a cone, the point of which is a considerable distance above the base. When the fuel is introduced it will thus be sustained in a manner to cause the combustion to take place in an outward as well as a vertical direction, thereby pre-

venting the common and objectionable burning of the fuel in the middle while that toward the wall of the fire-box remains unconsumed.

G represents the combustion chamber which surmounts the fire-box C, and in this chamber the door G' is provided as usual. Near the base of the combustion chamber G the wall thereof is provided with a series of apertures *p*, which may be controlled by a damper *p'*, the purpose of said apertures being to admit air to the combustion chamber immediately above the fire-box to assist the perfect combustion of bituminous coal when the same shall be used. When anthracite coal is being burned the apertures *p* will be closed, as opening them would have a tendency to bank the fire. The combustion chamber G is surmounted by a chamber H, the base H' of which carries upward extending sectional rings I of the kind described and claimed in Letters Patent of the United States, No. 336,392, granted to me February 16, 1886. The function of the projections I is to afford an increased heating surface, they receiving heat from the combustion chamber G and affording a circuitous passage for air entering the chamber H at the outer edges and passing toward the central outlet K. Pipes L, which may be four in number, two being shown in the sectional view of the figure, lead from the chamber E, with the upper end of which they communicate, to the chamber H, with which they communicate near the circumference. The pipes L convey the air which enters the chamber E through the openings *q* and *q'* to the surmounting heating chamber H, the air becoming partly heated in the upward passage and more thoroughly heated in the passage through the chamber H to the flue K, whence it may be withdrawn for use.

It is quite apparent that the products of combustion may be abstracted in any of the usual ways, as by a chimney located within the flue K and opening into the combustion chamber, or by a chimney withdrawing the products of combustion at the side of the stove; but I prefer to employ a chimney which, while permitting a central draft, as in the first-named structure suggested, shall pass from the combustion chamber at the

side thereof, as in the last-named. For this purpose I provide in the wall of the chamber a double annular flange *o*, one-half of which projects into the combustion chamber to receive the elbowed pipe *M* terminating in the flaring upward extending mouth *n*, the upper extremity of which is a little below the top of the combustion chamber, the other half of the flange affording means for securing the pipe *M'* for conveying the products of combustion away from the stove. From this construction it will appear that the products of combustion are drawn upward by a central draft and are directed against the base of the heating chamber *H* before their withdrawal from the stove, thus permitting the full benefit of the products of combustion for heating the air to be obtained.

As will be observed on an examination of the figure the top plate *H'* of the combustion chamber is made substantially cone-shaped; that is to say, the center is raised higher than the lateral edges. By this arrangement the products of combustion are caused in their upward movement to pass along the base of the upper heating chamber and collect at the central point immediately above the chimney opening. In this manner the effect of the draft through the chimney is to cause a di-

rection of the heat product against the air heating surface, and at the same time the arrangement of the plate *H'* is such as to direct the products of combustion into the chimney outlet, and hence serves to assist combustion by increasing the readiness of the withdrawal of the products thereof.

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

In a heating stove, the combination with the fire box containing a grate and a combustion chamber, of an air heating chamber *E* surrounding the fire box and formed therewith in a single casting, and having air inlets in its base portion and air outlets in its upper end, a plate *H'* concave on its under side and forming the base of a hot air chamber *H*, pipes *L* leading from the chamber *E* to the chamber *H* through the combustion chamber, between the walls of which and the said pipes space is afforded for the passage of the products of combustion, and the chimney *M M'*, leading from a point in the combustion chamber below the raised center of the plate *H'*, substantially as described.

LYMAN P. CONVERSE.

In presence of—

J. N. HANSON,
M. J. FROST.