

L. HOWARD.
COMBINATION COAL AND WOOD HEATING STOVE.
APPLICATION FILED APR. 13, 1912.

1,035,589.

Patented Aug. 13, 1912.

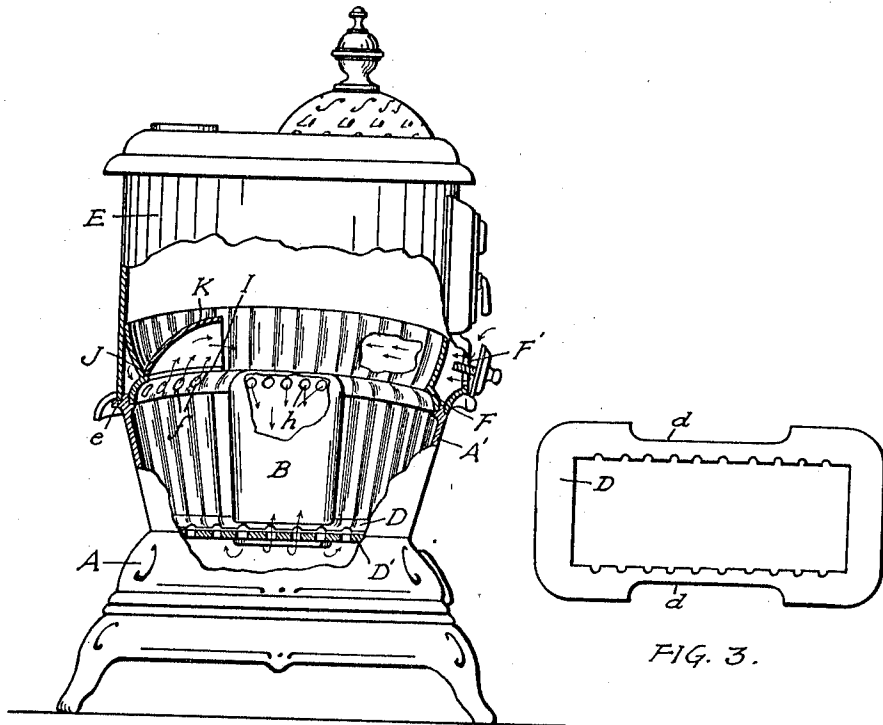


FIG. 1.

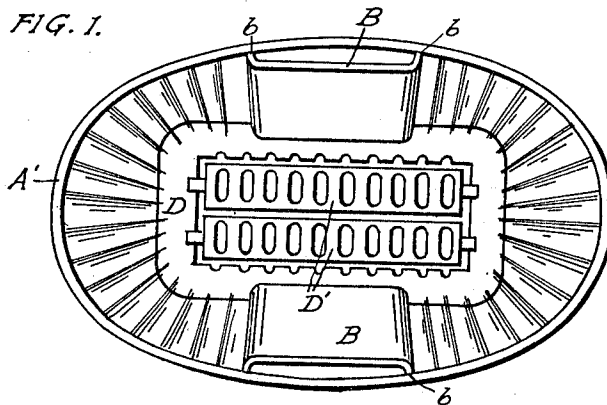


FIG. 2.

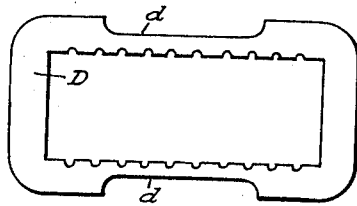


FIG. 3.

WITNESSES

A. B. Cornelius
Maria Mitchell

INVENTOR,

Lincoln Howard
BY *Engene Ayres,*

ATTORNEY

UNITED STATES PATENT OFFICE.

LINCOLN HOWARD, OF RALSTON, NEBRASKA.

COMBINATION COAL AND WOOD HEATING-STOVE.

1,035,589.

Specification of Letters Patent.

Patented Aug. 13, 1912.

Application filed April 13, 1912. Serial No. 690,602.

To all whom it may concern:

Be it known that I, LINCOLN HOWARD, a citizen of the United States of America, residing at Ralston, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Combination Coal and Wood Heating-Stoves, of which the following is a specification.

10 The object of my invention is to provide a heating stove in which either wood or coal can be used of the class shown in Patent No. 993,300, upon which Letters Patent were issued to me May 23, 1911, my improved
15 stove being so constructed that I secure a greater degree of heat from it on a decreased quantity of fuel than from said patented stove or from any other stove of which I have any knowledge.

20 I accomplish my object by the construction shown in the accompanying drawings in which,—

Figure 1 is a longitudinal sectional elevation of the stove, the base fire pot and drum broken away to show the interior arrangement; Fig. 2 is a top view of the fire pot grate frame, the grates and flat-flanged castings in each side of the fire pot forming air
25 passage down the inside of the fire pot into the ash pit or base of the stove, and Fig. 3 is a detail top view of the grate frame showing incuts therein.

Similar letters refer to similar parts in the several views, A being the base of the
35 stove and A' a fire pot cast in an inverted conical shape to assist in radiating heat to the floor.

B B are upright flat castings spaced from the inside of the sides of fire pot A', the outwardly flanged edges *b b* of said castings being seated against said sides of the fire
40 pot. Said castings are securely attached, are open at both top and bottom, are preferably somewhat larger at their tops than at their bottoms and form air passages for part of the air from the draft passage down into the base of the stove.

D is the grate frame and *d d* incuts in each side of the same to allow the lower end
50 of castings B B to pass through and slightly below the grate frame into the base of the stove. D' D' are grates in said grate frame.

The sheet iron body E of the stove is, preferably, joined to the top of the fire pot
55 as shown in Fig. 1 at *e*.

F is a casting which forms an inner wall

of a draft passage through which cold air, entering the stove at draft F', is heated while passing around to the sides and rear of the stove, part of said air passing
60 through ports *h h* into the preheated air passages formed by castings B B and thence down through said incuts *d d* in grate frame D into the base of the stove under the grates to supply the grates with draft while the
65 greater part of said preheated air passes on back to the rear of the stove and through ports *f f* into the combustion chamber above the fire. The special object of casting F is to conduct the cold air entering the stove at
70 said draft F' around the stove the longest possible circuit so that it will be heated to the highest degree possible before being admitted either to the grates or combustion chamber. Said casting F is seated in the
75 upper edge of the fire pot and is usually composed of two or more sections and is preferably corrugated except at the edges where it joins the sheet iron body and the fire pot of the stove. The upper edge of
80 said casting lies flat against said sheet iron body. The purpose in casting it corrugated is to secure both greater strength and heating surface.

I is an incurve extending horizontally
85 around casting F; the rear section of said casting is provided with a seat J in said curve I to support a baffle plate K. The rear section of casting F is provided with
90 ports below the incurved line I to admit preheated air from the draft passage to the combustion chamber under baffle plate K and the two side sections of casting F are provided with ports *h h* through which the
95 preheated air is admitted into the air passages at sides of the stove and conducted down through the grate frame to the base of the stove. The air admitted through draft
F', passes through said incurved draft passage and becomes highly heated in passing
100 around to the sides and rear of the stove, the larger part passing on to the rear of the stove and thence through a plurality of ports *f f* in the lower part of casting F into the combustion chamber under baffle plate
105 K where it is forced to mingle with and burn the gases and smoke coked out of the fuel, while a smaller part passes down through ports *h h* in the lower edge of the casting F at the sides of the fire pot to the
110 base of the stove where it is drawn up through the grates to start the fire and keep

up the coke and gas making process. Casting F is kept at a high temperature by means of a hot blast from the rear of the stove under said baffle plate K and the temperature of the air while passing it continues to increase. The volume of air passing through said draft passage is greatly expanded by its rise in temperature and rushes into the combustion chamber with great force. By means of the baffle plate K this preheated air is deflected toward the fire and forced to mingle with the combustible smoke and gases arising from the fuel. That part of the preheated air passing down into the base of the stove under the grates is only sufficient to keep the fire alive and keep up the coking and gas making process.

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

1. The combination in a wood and coal heating stove with a base, a body portion, a fire pot of inverted conical shape spaced from the body, a draft and a corrugated incurved casting forming the inner wall and provided with ports at the rear and sides below the line of the incurve projection of the passage for air entering said draft and a baffle plate seated in said incurve member, of grates and a grate frame supported on said base said frame having longitudinal incuts in each side, and flat castings spaced from the fire pot open at the top and bottom the outwardly flanged edges thereof seated against the sides of the fire pot, the open bottoms thereof extending into said base through the longitudinal incuts in said grate frame, said flat castings forming air passages for air entering the draft and passing around to the sides of the stove and through the side ports near the base of the corrugated casting to pass into the base of the stove.

2. The combination in a wood and coal

heating stove comprising a supporting base, an outer body portion, a fire pot, a corrugated casting forming an inner wall of a draft passage, a draft entrance door supplied with ports at the sides and rear thereof, flat castings spaced from the insides of the sides of the fire pot their flanged edges seated against the sides of the fire pot the same being open at both top and bottom to receive preheated air from said draft passage through said side ports and carry said air into the base, and a grate frame provided with incuts in which said flat castings are seated.

3. In a heating stove of the kind described the combination with the base, the fire pot and a casting provided with ports at the rear and sides near its bottom, of castings connected with but spaced from the inner sides of the fire pot, open at the top and bottom and having connection with said side ports at the lower edge of the top casting and a grate frame and grates therein supported in the top of the base said frame having an incut on each side to receive and seat the open bottoms of said castings.

4. In a heating stove for wood and coal, a base and a grate frame therein provided with grates the outer sides of said frame having incuts, a fire pot supported on said base, upright castings their flanged edges engaging with the sides of said fire pot, the bottoms seated in said incuts, said upright castings being open from top to bottom and adapted to form passages for preheated air and carry the same into the base of the stove.

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

LINCOLN HOWARD.

Witnesses:

MEDORA SAUTEE,
EDWARD C. SELS.