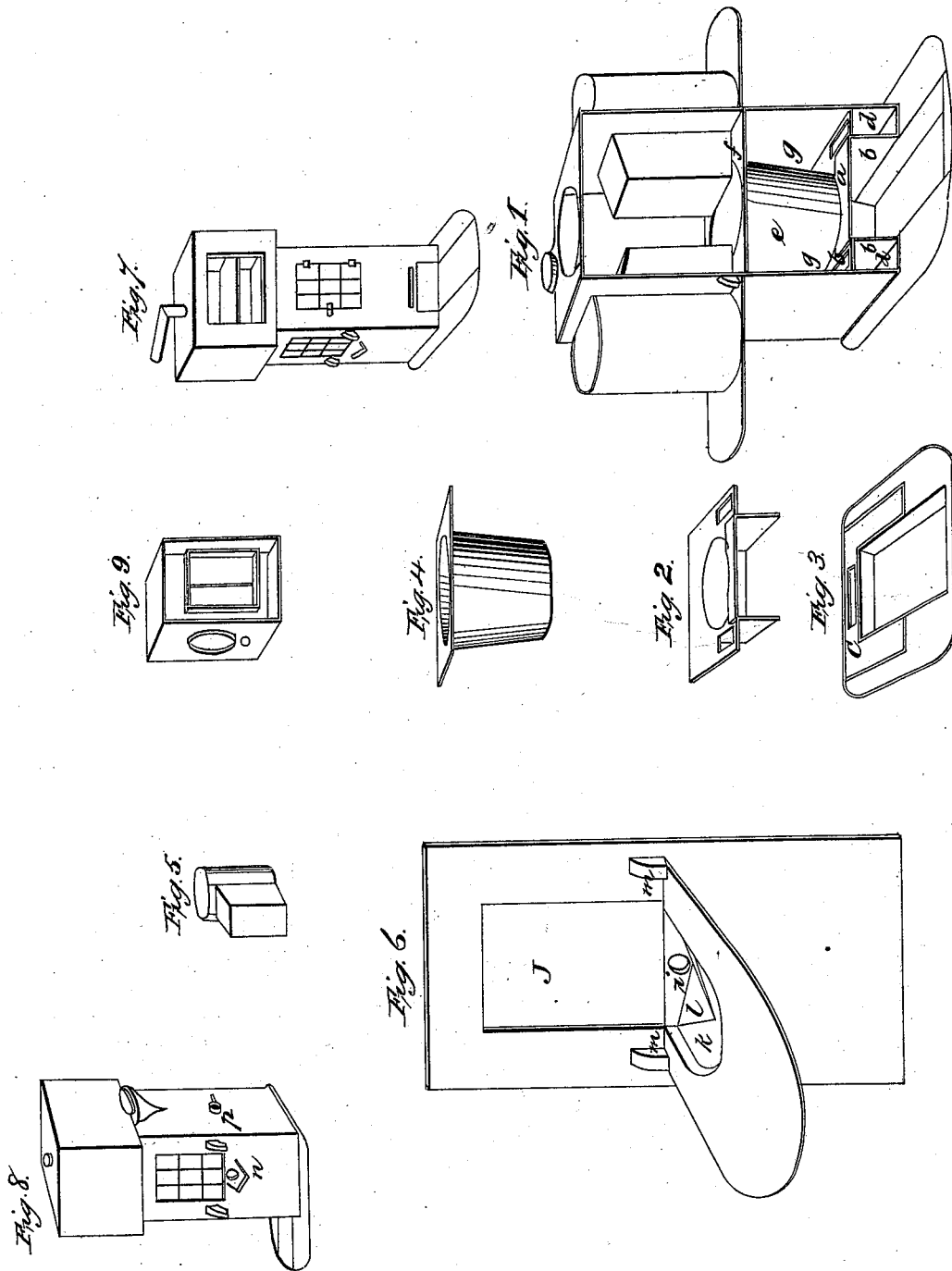


C. Slade,
Cooking Store,

N^o 457.

Patented Nov. 11, 1837.



UNITED STATES PATENT OFFICE.

CALEB SLADE, OF TROY, NEW YORK.

STOVE, GRATE, BOILER, AND OVEN.

Specification of Letters Patent No. 457, dated November 11, 1837.

To all whom it may concern:

Be it known that I, CALEB SLADE, of the city of Troy, in the county of Rensselaer and State of New York, have invented new and useful Improvements in Stoves for Burning Coal and also in Ovens and in Boilers; and I do hereby declare that the following is a full and exact description.

I have applied my improvements to stoves made square at the base—having upright sides of equal width and about twice as high as they are wide—with a common sunk hearth and sliding damper and a grate constructed and managed like those in common use with other coal stoves.

The seat of the grate consists of a horizontal plate extending to the side, back and front plates of the stove with an opening of the form and size of the grate in the center. From the under side of this plate a flange is extended down vertically about four inches to the bottom plate or hearth—and horizontally it is extended around near the edge of that part of the sink which comes within the stove—terminating vertically in front on each side even with the forward edge of the plate to which it belongs. This plate and flange are represented in the annexed drawings in Figure I, letters *a*, *b*, *b*, and separately from the stove by Fig. II. By means of the forward termination of the flange it is made to set snugly against the front plate. The back or inner end of the sink as well as the cross section of the flange behind it as shown in Figs. I and III, is forward of the back plate of the stove far enough to leave room between the plate and flange for an opening through the bottom plate as at *c*, Fig. III, as an inlet for air into the space thus left between the flange and outer plates of the stove to be improved as an air chamber. This space is partially shown in Fig. I, letters *d*, *d*. Upon the horizontal plate thus supported by the flange the furnace *e*, for burning the coal is placed—the opening in the plate with the grate being covered by it. I make the furnace of cast iron and connect it at the top with a horizontal plate which is cast with it so as to extend like the plate below to the side, back and front plates of the stove as shown by Fig. IV, and letters *f*, *f*, Fig. I. The space *g*, *g*, which surrounds the furnace between those two plates forms another or second air chamber—between which and the chamber that surrounds the flange under-

neath communications are made by openings in the lower plate of the side near the front as at *h*, *h*. An opening is also provided in each side plate as at *i*, Figs. VI, VII, and VIII, and in the back plate as seen at *p*, Fig. VIII. These openings are near the top of the upper air chamber and are for the purpose of allowing the air as it becomes heated to escape into the apartment in which the stove is placed or otherwise applied as will hereinafter be explained.

I make provision for a boiler on each side of the stove and for their support I attach a plate to each side plate extending out horizontally about on a level with the top of the furnace to a distance about equal to twice the diameter of the boiler. These for the purpose of description will be called the platforms. In order to present the boiler to the fire an opening is provided in each side plate of the stove for that purpose—the bottom of the opening on a level with the platform and the boilers I make with a projection of a part of the vessel itself extending out horizontally on one side to such distance as that when shoved into the opening it will reach over about a third part of the furnace. Its dimensions otherwise are in width about equal to half the diameter of the other part of the boiler and from the same bottom extending up to about three fourths of its height. The size and form of the openings and of the projecting part of the boiler are adapted to each other. The platforms with the boilers in place over the furnace are represented in Fig. I. And the boiler separately on a reduced scale by Fig. V and the side opening on an enlarged scale by Fig. VI, letter *j*. In each platform a sink is provided at the end next to the stove occupying a space horizontally a little less than the bottom of the external part of the boiler when its projection is placed over the furnace. The depth of the sink at the sides is about an inch—but in the center of the inner edge of the plate it is extended down so as to inclose within its limits the opening (*i*) in the side plate from the upper air chamber in order that the heated air therefrom may be let into the cavity formed by the sink under the boiler and thereby assist in heating it. The sink with its depressed section at the center is shown in Fig. VI, *k*, *l*. The platforms are attached to the stove by means of a projection from the side plates near each edge with a recess in nature of a

socket extending up to a discretionary distance next to the surface of the side plate and by providing a corresponding lip or flange from the end of the platform for each
 5 socket it is placed therein and thereby held secure against outward inclination. This is seen at *m*, *m*, and a flange from the side plate as at *n*, Figs. VII and VIII fitted to the edge of the depressed section of the sink
 10 so as to allow it to rest thereupon while the secure section in its bearing against the side plate answers the purpose of a brace—by all which the platform is effectually supported in its place, and by raising its
 15 outer end is easily disengaged and taken off so as to leave the stove to be used without them when desirable. When either of the boilers are not used the opening for it is closed by a movable plate or door.

20 The opening for the stove pipe is in the top plate back of the upright part of the back plate, they both being projected out for that purpose as shown in Figs. I, and VIII. There is also an opening for a boiler at or
 25 near the center of the same top plate as is seen in Fig. I.

My improvement in ovens consists in making them with double bottom sides and top and in using them in connection with
 30 coal stoves of the above description and also in the manner of heating them as is hereinafter pointed out.

For the sake of description I distinguish the double plates of which the oven is composed as the inner and outer ovens. They
 35 are so apportioned to each other as to leave a space between them for the draft or hot air from the fire to pass therein throughout. In order to provide for its entrance an opening
 40 is to be made in the bottom of the outer oven surrounded with a shallow flange as a collar fitted in size and form to the opening for the boiler in the top plate so that on placing the oven upon the stove the collar
 45 will enter the boiler opening and set snugly within it, then by closing the common passage from the fire to the stove pipe by a damper such as is commonly used for like
 50 purposes the draft or heated air will pass through the boiler opening into the space between the bottom plates of the outer and inner ovens and then up the side and over the top from the center of which a pipe is extended as a continuation of the draft to the
 55 common stove pipe or chimney as is shown by Fig. VII. In Fig. IX which is a representation of the oven on one end in order to

show the opening *o*, with its collar in the bottom of the outside are shown the double bottom, sides and top, the outer front plate
 60 being off.

In order to protect the bottom of the inner oven from being too much heated I place under it when the fire requires such protection, brick or other material raised above
 65 the opening by means of rods of iron placed across it or attached to the ovens so as not to obstruct the passage. I also make use of the hot air issuing from the upper air chamber to aid in heating a common re-
 70 futing tin oven which is occasionally placed upon the stove (the boiler opening being closed) for the purpose of baking or cooking by conducting the heated air into the oven by means of a pipe attached to the
 75 opening in the back plate, for which purpose a shallow flange is provided around the opening to receive the pipe. This opening when required is closed and regulated by a damper, provision being made for that pur-
 80 pose as shown in connection with the opening at *p*, Fig. VIII. I have a door provided in the front plate of the stove for the introduction of fuel to the furnace. These
 85 with a narrow horizontal opening for agitating the grate are represented in Fig. VII.

What I claim as my invention and desire to secure by Letters Patent is—

1. The manner of constructing the air chambers between the flange which supports
 90 the grate and furnace and the external plates of the stove in combination with the air chamber next above it in the manner and for the purposes described.

2. The manner of constructing the plat-
 95 forms and of attaching them to the stove and supporting them in that connection and detaching them from it in combination also with the air chambers in the manner and for the purposes described. 100

3. The manner of constructing the boilers with the manner of applying the hot air from the air chamber to aid in heating them both in combination with each other and with the stoves of the above description, and
 105 also the double oven in combination with the same stove for the uses and purposes described.

Subscribed this 19th day of October, 1837.

CALEB SLADE.

Witnesses:

DANIEL WHITING.
 GEO. CROSS.