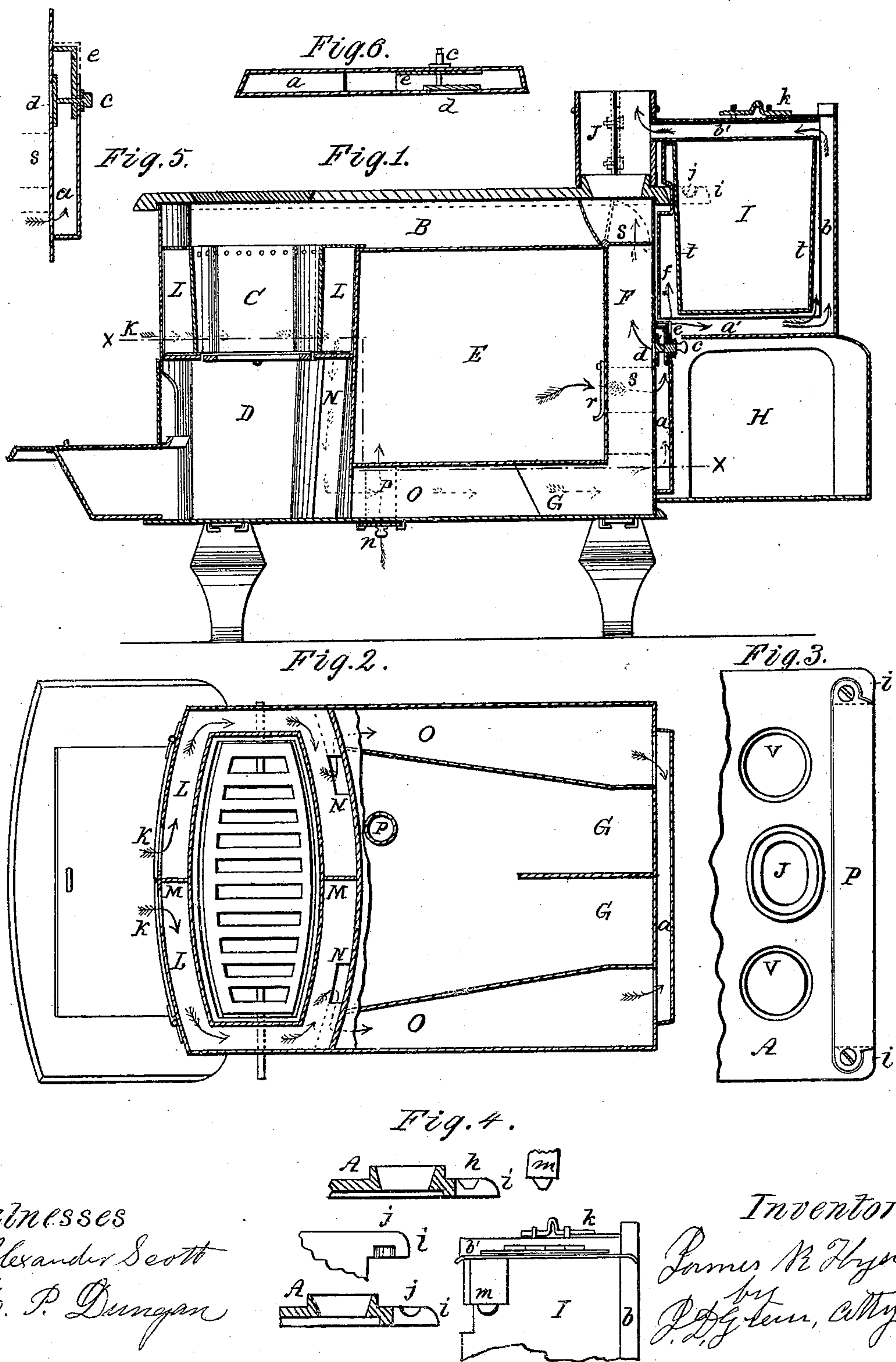


J. R. HYDE.  
Cooking Stoves.

No. 150,048.

Patented April 21, 1874.



Witnesses  
Alexander Scott  
H. P. Dungan

Inventor  
James R. Hyde  
by  
J. D. G. term, atty.



# UNITED STATES PATENT OFFICE.

JAMES R. HYDE, OF TROY, NEW YORK.

## IMPROVEMENT IN COOKING-STOVES.

Specification forming part of Letters Patent No. **150,048**, dated April 21, 1874; application filed January 21, 1874.

*To all whom it may concern:*

Be it known that I, JAMES R. HYDE, of the city of Troy, in the county of Rensselaer and State of New York, have invented certain Improvements in Cooking-Stoves, Water-Reservoirs, and Warming-Closets, of which the following is a specification:

The nature of my invention relates to improvements in cooking-stoves, water-reservoirs, and warming-closets, and their combinations, reference being had to Letters Patent granted to me for and upon improvements in cooking-stoves and water-reservoirs, dated respectively March 11, 1873, and June 17, 1873; and it consists in constructing an air-chamber on the sides and ends of the fire-box, divided into two parts by vertical partition-plates in front and rear of said box. Into this chamber the air from the room is admitted, either in front and at each side of the partition-plate, or from the bottom of the stove, through ducts placed near the front corners in such stove, to and into the aforesaid heating-chamber. The air thus admitted becomes highly heated in said chamber, and passes therefrom, through flues at the back side of said fire-box and in front of the oven, from near the rear partition-plate, obliquely to the outside horizontal flues under the oven; thence along said flues to a vertical flue in rear of the smoke-flues; thence upward to the reservoir and along the bottom, up the back, and across the top of said reservoir to and into the smoke-pipe. This heated air may be let into the smoke-flue below the reservoir, or into the room, by the use of movable valves. It also consists in the construction and arrangement of the flues in such a manner that the air that is heated in the chamber around the fire-box is utilized, to impart additional heat to the oven, and to effectually heat the reservoir and warming-closet, or the room where such stove may be situated, or an upper room, by a connecting-pipe attached to the flue over the reservoir. It also consists in the construction and arrangement of a reservoir and warming-closet, mounted together, so that it may be attached to or detached from such stove, whenever it may be desirable, without the use of bolts or screws. It further consists in the employment of a valve in the stove-bottom, and a connecting-pipe to admit

air from the room into the oven; also, a valve in the back oven-plate, and a connecting-tube from the oven to the hot-air flue in rear of the smoke-flues, for the purpose of ventilating the oven, and for generating additional heat, to apply to the reservoir, or for heating an upper room, all of which is hereinafter more fully described.

Figure 1 is a longitudinal vertical sectional view of my stove, reservoir, and warming-closet. Fig. 2 is a plan view of such stove taken at *x x*, Fig. 1, as shown by the dotted lines, with a part of the fire-chamber and a part of the oven removed, showing the flues under the oven and the hot-air flue at the rear of the stove. Fig. 3 is a plan view of the rear part of the stove-top A, showing the piece P in position when the reservoir is removed; Fig. 4, sectional views of the top-plate A, and part of the reservoir, showing the manner of attaching the reservoir and warming-closet to the stove. Fig. 5 is a vertical sectional view of the hot-air flue or chamber at the rear end of the stove, showing the valves therein. Fig. 6 is a longitudinal cross-section of the same hot-air flue or chamber, showing the valves or dampers.

Like letters refer to like or corresponding parts in all the drawings or figures.

A represents the boiler-hole top of a cooking-stove, made in any of the known ways, except as hereinafter stated. B represents the flue-space over the oven; S, the damper; F, the common descending and ascending rear smoke-flues; G, the smoke-flues under the oven. (This is a two-flue stove, but three flues may be used if desired.) C, the fire-box; D, the ash-pit; E, the oven; H, the warming-closet; I, the reservoir. Around the fire-box C is formed an air-chamber, L, extending entirely around the same, and provided with two vertical partitions, M, as shown in Fig. 2, so as to form two apartments. Cold air is admitted into this chamber through flues extending from the stove-bottom to said chamber L, and at or near the front corners of said stove, or through the front plate of such stove, and on each side of the front partition-plate M, as shown at K, Fig. 2. These inlets for cold air should be provided with valves, so as to regulate the quantity of air to be admitted. The air admitted into this



chamber or space L becomes highly heated, and passes (as indicated by the arrows in Figs. 1 and 2) around the fire-box and down through flues N, which lead obliquely from near the rear partition M in said chamber to the side bottom flues O, Fig. 2, and along said flues to and through openings in the rear-end plate of the stove into the air-chamber or flue *a*, Figs. 1, 2, 5, and 6. This flue *a* extends nearly from side to side of the stove, and from near the bottom of the stove up to near the bottom of the reservoir, and is provided with movable dampers or valves, as shown in Figs. 1, 5, and 6, and so constructed that when the valve *e* is opened, by moving the knob *c*, the heated air will pass into the flue *a'*, *b*, and *b'*, and into the smoke-pipe J, or if the slide-valve *k* is moved so as to open the space covered by it over the flue *b*, the heated air will be conducted into the room; or if a pipe be attached to the top of the flue *b* the heated air may be carried to an upper room. A section of the smoke-pipe J is made in two parts and bolted together, having an opening in the back part to receive the end of the flue *b'*. When the valve *e* is open, the heated air will be diffused throughout the spaces *f* at the sides and ends of the reservoir-lining *t*, as well as through the flues *a'*, *b*, and *b'*. This lining *t* is a little tapering, so that a small space is formed on the sides and ends, between the lining *t* and the outside wall of the reservoir. The space *f*, that is next the stove, is much the largest. The valves *e* and *d* are made to slide horizontally, and are attached together by the knob *c*, and so formed that when one is opened the other will be closed, although they may be made to open and close separately. When the reservoir and warming-closet are not attached to the stove, the heated air may be used to warm the room by opening the valve *e*, or it may be turned into the smoke-flue F, by closing the valve *e*, and opening the valve *d*. Fig. 3 is a view of a part of the stove-top A, having a piece, P, fitted therein to make a finish of the stove-top when the reservoir and warming-closet are not used. The dotted lines, Fig. 3, show the length of the reservoir at that point; also the projections *i* of the stove-top. The reservoir and warming-closet are mounted together, so as to form but one piece, and can be readily attached to or detached from the stove. By this arrangement a large saving in time and expense is obtained in the shipment of such stoves and warming-closets and reservoirs; also in setting them up for use. The manner of attaching the reservoir and warming-closet to the stove is by extending or projecting a portion of the top A at the rear corners, as shown at *i*, Figs. 1, 3, and 4, which projections have recesses therein, either circular or beveled in form, as shown at *j* or *h*, Figs. 1 and 4. On each end, and near the front corners of the reservoir, are projecting bearing-pieces *m*, formed to fit into the recesses *j* or *h* in the extended or projecting parts *i* of the stove-top. The reservoir and warming-

closet are suspended by the bearing-pieces *m*, which fit into the recesses *j* in the stove-top A, and rest against the back part or end of the stove, and will be thereby held firmly in position, without the use of bolts, screws, hooks, or slots through the stove-top. *v* are openings in the stove-top, through which to clean out the flues F. There is a duct, *p*, leading from the bottom of the stove into the oven, near the front part thereof, provided with a valve, *n*, at the bottom. There is also a duct, *s*, leading from the back of the oven to and into the flue *a*, as shown by the dotted lines, Fig. 1. Said duct is provided with a valve, *r*. These valves may be opened and closed at pleasure, the object being to ventilate the oven; also, to regulate the heat therein when baking or roasting; also, to admit air into the oven, where it will be highly heated, and will pass into the flue *a*, thereby supplying a large additional amount of heated air to the reservoir or room, or both. By the use of the side bottom-flues O for the passage of heated air from the chamber around the fire-box, there will be a much greater degree of heat obtained in the oven than could be by the common two or three flue stove. This stove will bake or roast well in the oven if the damper S is down, so that the draft from the fire-box shall be direct to the exit-pipe.

I do not claim the heating-chamber L around the fire-box, or the inlets or ducts for the admission of air therein, or the division-plates therein, separately, or as claimed in the Letters Patents granted and issued to me for improvements in cooking-stoves, reservoirs, and warming-closets, bearing date March 11th, 1873, and June 17th, 1873. I do not claim the particular flues or valves about the reservoir, as claimed in said patents, except in new combinations, or connected with new devices; but

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

1. A cooking-stove, which has a heating-chamber, L, around the fire-box, with or without partitions M in front and rear, in combination with the oblique flues N, connected with two flues, O, located under the oven, externally to the smoke-flues G, the hot-air chamber or flue *a* in rear of the descending and ascending flues F, and the valves *e* and *d*, substantially as and for the purposes herein described and set forth.

2. A cooking-stove which has a heating-chamber, L, air-flues N connected with flues O located under the oven, and next to the outside of the stove, the chamber or flue *a* having the valves *e* and *d*, in combination with the ordinary vertical and horizontal smoke-flues, and a water-reservoir attached to the rear end of such stove, substantially as and for the purposes herein described and set forth.

3. A cooking-stove which has a heating-chamber, L, around the fire-box, flues N, O, and *a*, valves *e* and *d*, in combination with a water-reservoir, or reservoir and warming-closet, attached at the rear end of such stove,



and having the flues  $a' b b'$ , the space or spaces  $f$ , and with or without the valve  $k$ , substantially as and for the purposes herein described and set forth.

4. The oven  $E$  having the valved duct or flue  $p$  leading from said oven to the bottom of the stove, the valved duct or flue  $s$  leading from said oven into the chamber or flue  $a$ , in combination with the chamber  $L$ , and flues  $N$ ,  $O$ , and  $a$ , substantially as and for the purposes herein described and set forth.

5. The stove-top  $A$ , provided with recesses

$j$  or  $h$  in the rear projecting parts  $i$ , in combination with the reservoir having the projecting bearing-pieces  $m$  attached thereto, whereby the combined reservoir and warming-closet are suspended at and against the rear end of the stove, substantially as and for the purposes herein described and set forth.

JAMES R. HYDE.

Witnesses:

FRANK H. BRYAN,  
CHARLES S. HYDE.