J. R. HYDE.

COOKING-STOVE.

No. 175,103. Patented March 21, 1876.

Fig. 1.

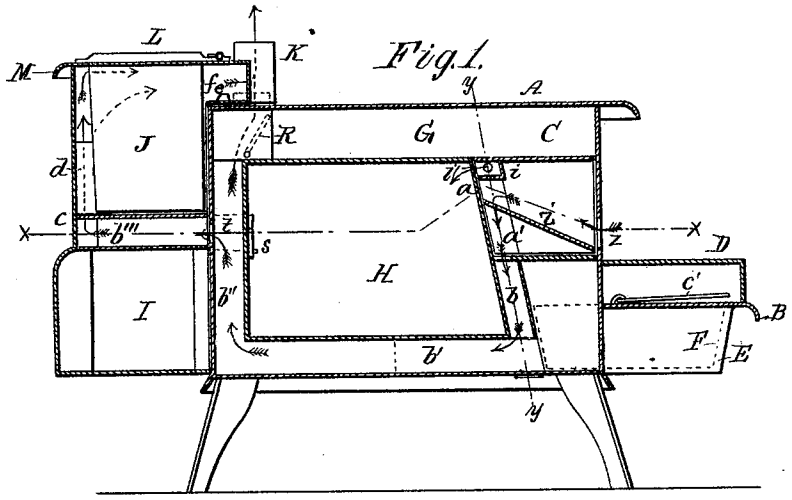


Fig. 2.

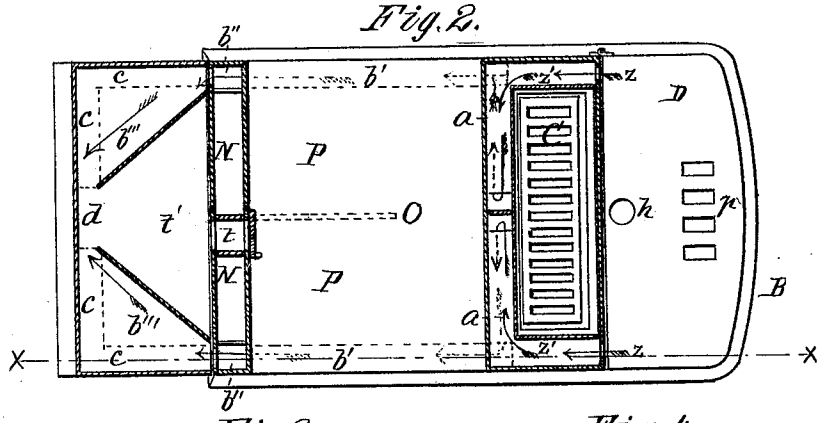


Fig. 3.

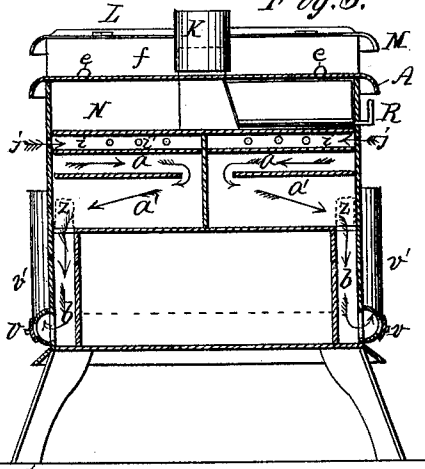
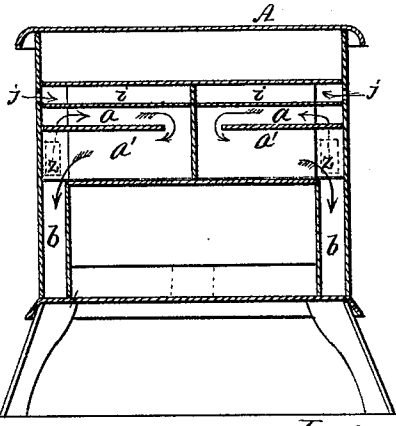


Fig. 4.



Witnesses.

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JAMES R. HYDE, OF TROY, NEW YORK.

IMPROVEMENT IN COOKING-STOVES.

Specification forming part of Letters Patent No. **175,103**, dated March 21, 1876; application filed February 12, 1876.

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 improvements in cooking-stoves, water-reservoirs, &c., dated and numbered respectively, as follows, March 11, 1873, No. 136,730; June 17, 1873, No. 140,044; April 21, 1874, No. 150,047, and No. 150,048; also the reissues thereon, Nos. 6,389 and 6,390 of reissued patents. And it consists in constructing an air-chamber on the ends and back side of the fire-box, and divided by partition-plates so as to form revertible flues, as hereinafter stated. Into these chambers air is admitted at or near the front corners of the stove, and about as low down as the grate. Said air will pass up the ends of the fire-box to the upper part thereof; thence along the back to near the center; thence down around a division-plate; thence along the back to and into flues at the rear corners of the fire-box; thence connecting with the outside horizontal flues below the oven, and up vertical flues at the rear corners of the stove, and connecting with flues under the reservoir-tank, and to and through a central flue at the back of said tank, up about half-way between the top and bottom; and thence along the upper part of the back and ends of said tank, and to and into a flue in front of said tank, to and into the smoke pipe or flue. It also consists in the construction and arrangement of the flues in such manner that the air that is heated in the heating-chambers at the fire-box, or between the oven and fire-box, is utilized to impart additional heat to the oven, and to effectually heat the reservoir and warming-closet.

It also consists in a stove having an incased reservoir-tank, and flues under and about the tank for the passage of a current of heated air. It also consists in the peculiar manner of attaching the reservoir and warming-closet to the stove. Also, in the construction of a chamber at the top and back of the fire-box, and having apertures at each side of the stove; also apertures in the side next the oven. These apertures are for the admission of air from the room into said chamber; from thence into the oven; from thence through a valved duct in the back part of the oven, which connects with a flue at the bottom of the water-tank, and which flue connects with the central flue at the back of said tank. This arrangement of chamber and openings into the oven, and valved duct to and under the reservoir, as aforesaid, forms a ready means to ventilate the oven and to supply an additional amount of heated air to and about the reservoir, all of which is hereinafter more fully described, reference being had to the drawings and letters of reference marked thereon, making a part of this specification.

Figure 1 is a longitudinal sectional view of my stove, reservoir, and warming-closet, taken at *x x*, Fig. 2. Fig. 2 is a plan view of said stove taken at *x x*, Fig. 1. Fig. 3 is a cross-section of Fig. 1, taken at *y y*, showing the hot-air chamber and its divisions or partitions in rear of the fire-box; also, the downward flues from the heating-chambers, the horizontal and vertical hot-air flues outside of the jambs of the above; also, a portion of the reservoir above the stove top. Fig. 4 is a cross-section of Fig. 1, taken at *y y*, and without that portion of the reservoir above the stove top, and the hot-air flues within the jambs. The stove is made in any of the known ways, except as herein stated.

A represents the boiler-hole top of the stove; G, the flue-space over the oven; C, the fire-box; H, the oven; B, the hearth; E, the sink in the hearth and ash-pit; F, the ash-pan; *c'*, the bail to the ash-pan; D, the swing-hearth; I, the warming-closet; J, the water-tank; M, the reservoir top; L, the lid to the water-tank; N, the vertical smoke-flues; P, the horizontal smoke-flues under the oven; O, the division-plate between the flues; R, the damper; K, the smoke pipe or flue. Air from the room is admitted through apertures Z in the front part of the stove, at or near the stove-hearth, into chambers Z' at the ends of

the fire-box, and above the grate. Said air passes from thence into heating-chambers at the back side of the fire-box, and in front of the upper part of the oven, and which chambers are divided by partitions, as indicated on Figs. 3 and 4. Said air passes from the chamber Z′ into and along the heating-chamber or flue *a*, and around the end of a division-plate into the heating flue or chamber *a′*, thence into and down the corner flues *b* to and into the horizontal flues *b′*, under the oven and outside of smoke-flues, as indicated on Fig. 2 by dotted lines, and from thence into the rear vertical flues *b″*, and through openings in the back-plate of the stove and into and through the flues *b‴*, between the warming-closet and the water-tank bottom. These flues *b‴* are formed by plates placed edgewise on the top plate of the warming-closet, or bottom plate of the water-tank casing, and extending from the back plate of the stove diagonally to within about two inches of the center between the ends of the reservoir-casing, and to within about one inch of back casing, by attaching plates *c c* to the outside casing and projecting them inward, so that the side of the plates *c c* are even with the top of the diagonal plates, as indicated in Fig. 2, so that when the water-tank is put in position its bottom forms the top part of the said flues *b‴* and *t′*. From the rear ends of the diagonal plates and the inner ends of the plates *c c* are placed vertical plates extending about half-way up the water-tank, so as to form the central back flue *d*, so that the aforesaid heated air that passes through the apertures in the back plate of the stove, into the flue *b‴* under the water-tank, will pass to, into, and up the rear flue *d*, and will be diffused about the back, ends, and front of the reservoir-tank, and will pass into the flue *f* in front of the reservoir and into the smoke flue or pipe K. The course of said current of heated air is indicated by the arrows in Figs. 1, 2, 3, and 4. At the top part of the fire-box is a chamber, *i*, formed as indicated in Figs. 1, 3, and 4, having opening *j* through the jambs for the admission of air; also, having openings *i′* in this chamber *i* to admit the air from said chamber into the front part of the oven. There is a valved duct, *t*, leading from the back part of the oven and connecting with the flue *t′* under the water-tank, which flue *t′* connects with the flue *d*. This duct *t*, having the valve *s*, may be open and closed, as desired—opened to ventilate the oven, or to supply an additional amount of heated air to and about the water-tank.

The hot-air flues *b*, *b′*, and *b″* may be made upon the outside of the jambs, as indicated in Fig. 3, at *v′*. There may be a slide-valve, *v*, at the front part of the flue *b*, so that, if by any means, dirt or ashes shou'd lodge in said flue, it may be easily cleaned out. The reservoir-casing is made with a projection forward, which forms the flue *f*, which connects with the smoke-pipe K. This pipe K fits over the pipe-collar of the stove-top, and holds the reservoir in position; or there may be projecting pins or pieces *e* on the stove-top, to pass through the under plate of the flue *f*, so that the reservoir and warming-closet (which are mounted together) are attached to the stove-top by the pipe-collar or the projecting pins *e*, and are suspended at and against the back-plate or part of the stove, and may be attached to or detached from said stove at pleasure, and without the use of bolts or screws, so that the stove and reservoir may be shipped or used separately, if desired. The stove top projects a little past the back plate of the stove, so that the jambs of the reservoir-casing sit between these projections, or there may be guides or lugs attached to the back plate of the stove to answer the same purpose. The reservoir-cover L may be in one piece, if desired. This arrangement and construction of the hot-air flues in the stove and about the reservoir, and the heating-chambers at the fire-box present a large amount of positive heating-surface, whereby and wherein the air becomes highly heated and utilized to impart additional heat to the oven, and at the outsides, next the oven-doors, where it is the most needed; and said flues form a channel through which to convey a current of highly-heated air to and about the reservoir-tank, thereby heating said reservoir and contents; also, keeping the warming-closet suitably warm. The slide or swing-hearth has a register-damper at *p*. There is also a hole, *h*, in said swing-hearth, to insert a key to shake a sifter, or the sifter-handle may project through the front part of the hearth when a sifter is used.

I do not claim the heating-chambers, or the hot-air flues in the stove or about the reservoir or valves, as claimed in Letters Patent granted and issued to me for improvements in cooking-stoves, reservoirs, or reservoirs and warming-closets, bearing dates respectively, March 11, 1873, June 17, 1873, April 21, 1874, and the reissues thereon dated March 20, 1875, except in new combinations.

Having thus described my improvements, what I claim as new therein, and desire to secure by Letters Patent, is—

1. The combination of the apertures Z, heating-chambers or flues Z′ *a a′*, with the fire-box C, the hot-air flues *b b′ b″* for heating and conducting a current of air thus heated from about the fire-box to the reservoir and warming-closet, substantially as and for the purposes described and set forth.

2. The combination of the heating-chamber *i*, having the apertures *j* and *i′* therein, and the valved duct or flue *t*, and the flue *t′* under the reservoir-tank, substantially as and for the purposes described and set forth.

3. In combination, the hot-air flues *b‴*, *b‴*, and *t′* at the bottom of the reservoir-tank, through which may pass a current of heated air from the stove, substantially as and for the purposes described and set forth.

4. In combination, the hot-air flues $b^{\frac{1}{4}}b$ in the stove and b''' b''' under the water-tank, and the flue d at the rear of said tank, substantially as and for the purposes described and set forth.

5. The combination of the flue-space d at the rear of the reservoir-tank, spaces or flues at the ends thereof, the flue f at the front of said tank, through which may pass a current of heated air from the stove to and into the smoke pipe or flue, substantially as and for purposes described and set forth.

6. In combination, the stove top A, provided with projecting pins e, a reservoir having the flue f at the front thereof, having apertures at its lower part to receive the pins e, to hold said reservation in position, substantially as and for the purposes described and set forth.

7. In combination, a reservoir having the flue f at its front part, the pipe K attached thereto, and fitted onto the pipe-collar of the top A, whereby said reservoir, or reservoir and warming-closet, is suspended at and against the rear part of the stove, substantially as and for the purposes described and set forth.

JAMES R. HYDE.

Witnesses:
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IRVING W. ROSE.