2 Sheets--Sheet 1.

J. R. HYDE.

Reservoir Cooking-Stoves.

No. 136,730. Patented March 11, 1873.

Fig. 1.

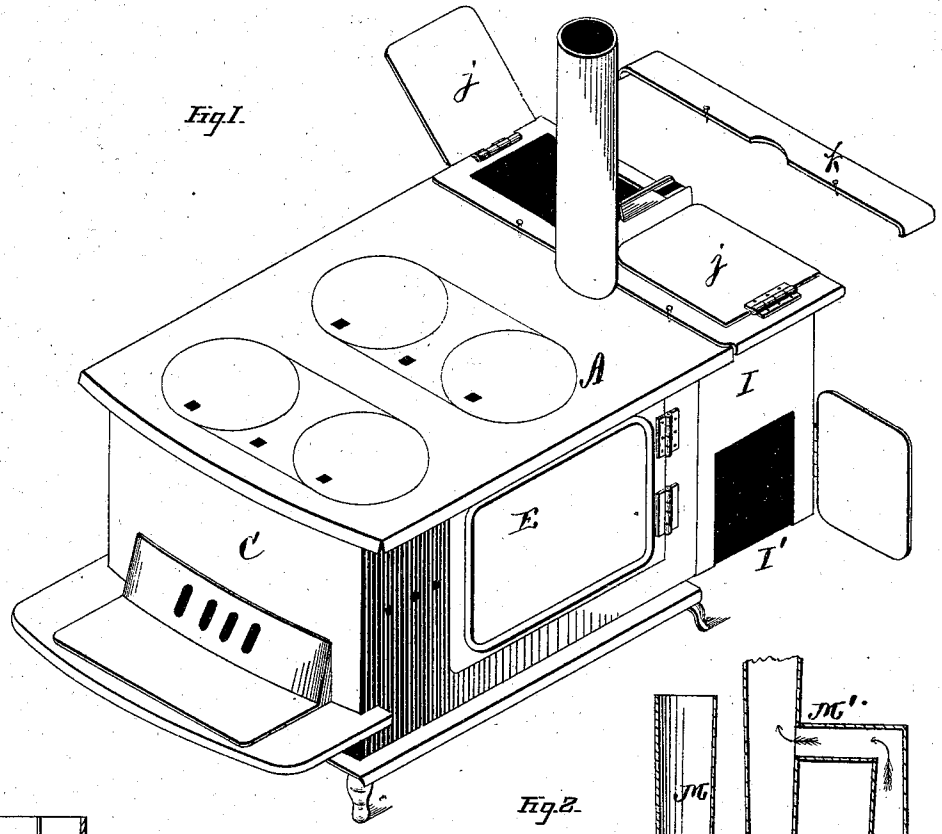
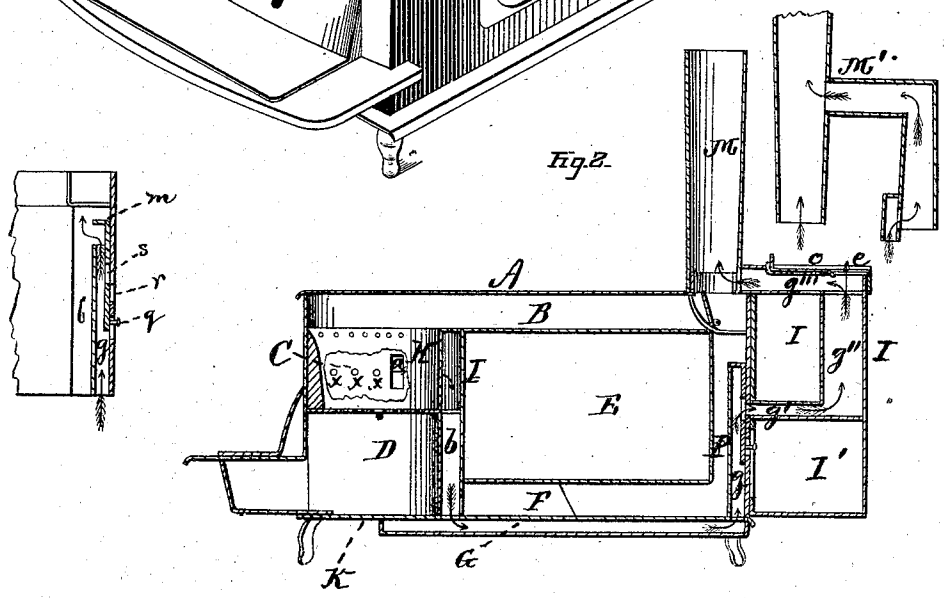


Fig. 2.



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2 Sheets--Sheet 2.

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Reservoir Cooking-Stoves.

No. 136,730. Patented March 11, 1873.

Fig. 3.

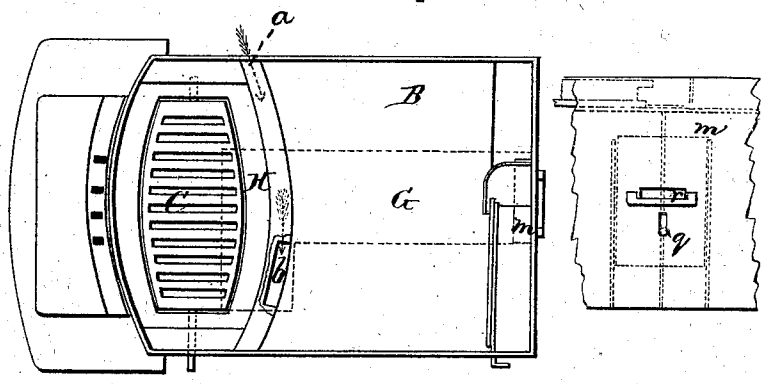


Fig. 4.

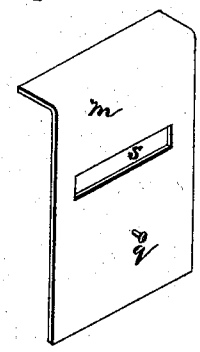
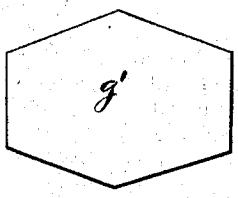


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES R. HYDE, OF TROY, NEW YORK.

IMPROVEMENT IN RESERVOIR COOKING-STOVES.

Specification forming part of Letters Patent No. **136,730**, dated March 11, 1873.

To all whom it may concern:

Be it known that I, JAMES R. HYDE, of Troy, in the county of Rensselaer and in the State of New York, have invented certain new and useful Improvements in Cooking-Stove; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists of a cooking-stove in which cold air is admitted from one side, passes between the back fire-plate and the front oven-plate, and down, in a heated state, in the rear of the ash-box, and through a flue in the bottom plate of the stove, under the oven to the rear of the stove; thence upward, either through the smoke-pipe or through a passage in the back plate, to the reservoir and warming-chamber. It also consists in the construction and arrangement of the flues in such a manner that the waste heat of a stove is utilized to heat the oven of the stove-reservoir and warming-chamber, or the room where the stove is situated. It also consists of a sliding damper placed on the inner part of the back plate of the stove, to allow the passage of heat to the reservoir and warming-chamber through an orifice in the back plate, when the same are employed with the stove, or to allow the passage of the heat directly up the stove-pipe when the reservoir or warming-chamber are not employed, all as more fully hereinafter set forth and described.

In the annexed drawing, Figure 1 represents a perspective view of my stove with a reservoir and warming-chamber attached to its rear, also showing a detached plate I use on the rear of the stove when the reservoir is dispensed with. Fig. 2 shows a longitudinal vertical section taken through the center of the stove and pipe, also showing a detached view of a modification of the stove-pipe, also a detached view showing the damper and flues in the back in position when the reservoir is dispensed with. Fig. 3 shows a plan view of the stove with the top plate removed, showing in dotted lines the flue in the bottom plate, also a detached view of the outside of the back plate. Fig. 4 shows a view of the damper used in the back plate. Fig. 5 shows the shape of the flue under the reservoir.

Like letters of reference indicate like parts.

In the accompanying drawing, A represents the top plate of a cook-stove, made in any of the known ways. B represents the oven top; C, the fire-box; D, the ash-pit; E, the oven; F, the common two or three flue under said oven; P, the common back flue; I, the reservoir attached to the rear of the stove; I′, the warming-chamber placed under said reservoir; and M, the stove-pipe. In one side of the stove, near its front, is a slot, *a*, Fig. 2, to admit cold air. The back fire-plate H is so arranged with the fire-box and front plate of the oven that an air-chamber is left between the two, and into this air-chamber cold air is admitted through the slot *a*. The side plates of the fire-box are perforated, as shown at *x x*, Fig. 2, and the body of the stove is also perforated to admit cold air into the fire-box for burning gas; but the openings in the body of the stove and side plates of the fire-box have no connection or communication with the slot *a* and air-chamber between the oven-front and back fire-plate. Extending from the bottom of the air-chamber in the rear of the back fire-plate, on the side of the stove opposite to the slot *a*, is a flue, *b*, which is in the rear of the ash-pit D and leads into a long flue, G, in the bottom plate of the stove. By this arrangement the cold air is heated as it passes across the air-chamber by the fire in the fire-box and passes down the flue *b*, becoming additionally heated from the heated ash-pit, and passes into the long flue G in the bottom plate, giving great heat to the oven above. At the rear of the flue G and at the back of the stove is a vertical flue, *g*, into which the heat from the flue G ascends. In this flue *g* is a vertically-moving damper, *m*, with its top bent over so that it forms a cover for the flue, and closing the same prevents the egress of heat when the damper is in proper position therefor. This damper is provided with a slot, *s*, as shown, and has a button, *q*, which passes through a slot in the stove-back to hold it thereto, and by which means it is caused to move up and down. The stove-back has also a slot, *r*, to correspond with the slot *s* in the damper, so that when the top of the flue is covered by the damper the openings of the damper and the back plate will be opposite one another, and allow the outward passage of the heat. When the

damper is in this latter position the reservoir I is attached to the back of the stove. The hot closet or warming-chamber I′ may be also employed with the reservoir at the same time, or it may be dispensed with, as preferred. Under the bottom of the reservoir I is a horizontal flue, *g′*, so arranged that its mouth will be just opposite the slot *r* in the back plate, and that the heat from the flue *g* will pass into the same. This flue *g′* is spread at its center, or made somewhat diamond shape, as shown in Fig. 5, so that the heat, after passing therein, is caused to be retained under the reservoir. At the back of the reservoir is a vertical flue, *g″*, which leads to a horizontal flue, *g‴*, over the top of the reservoir, and from thence into the stove-pipe M. The top of the flue *g‴* has a sliding damper, O, and a slot, *e*, at the top of the flue *g″*, so that by opening this damper the heat may be let out into the room whenever desired to heat the same. In the detached view of the damper of Fig. 2, it will be seen that when no reservoir is attached the damper is slided upward, closing the slot in the back of the stove, and at the same time opening the top of the flue, so that the air is permitted to pass directly up the pipe. Of course it is evident when the stove is thus used a common form of stove-pipe is employed.

The form of pipe M′ may be used instead of the one shown in the main part of Fig. 2, if so preferred.

It will be understood that in cooking-stoves it is of great advantage to secure and retain all the heat possible for the purpose of quickly and thoroughly heating the oven, and this is the main object of my invention. It is also well known that the front part of the oven becomes sooner heated and much hotter than the remainder; hence with my invention, with the hot-air chamber in its front, the heating-flue under the oven and in the bottom plate, and the additional flue *g* in the back, all combine to provide additional heat for the oven, and cause an equal distribution thereof; hence equally heating the oven in all its parts. Further, by means of the additional heat gained by the cold-air inlet, hot-air chamber, long flue in the bottom plate, and extra flue in the back plate, I am enabled to apply a water-reservoir or warming-chamber, or both, in the rear of the stove, and heat the same quickly and thoroughly.

It will be seen that the reservoir has hinged covers *j j* to allow it to be kept open or closed, as desired.

The plate *k*, shown in Fig. 1, is used upon the back of the stove to give the stove its proper finish when the reservoir is not used.

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

1. The slot *a* in the side of the stove-body, in combination with the back fire-plate H and front plate I of the oven, with a hot-air chamber between, substantially as and for the purposes herein set forth.

2. The combination of the vertical flue *b* with the hot-air chamber between the oven-plate I and back fire-plate H, and the slot *a* in the stove-body, substantially as and for the purposes herein set forth.

3. The flue G in the bottom plate of the stove, substantially as and for the purposes herein set forth.

4. The combination of the flue G, flue *b*, the hot-air chamber between the plates H and I, and the slot *a* in the stove-body, all substantially as and for the purposes herein set forth.

5. In combination with the long flue G, the vertical flue *g* and the slot *r* in the back-plate of the stove, all substantially as and for the purposes herein set forth.

6. In combination with the flue *g* and the slot *r* in the back plate, the sliding damper *m*, provided with the slot *s*, and bent at its top to close the flue, all substantially as and for the purposes herein set forth.

7. The combination of the flue G, flue *g*, slot *r* in the back-plate, slotted damper *m*, flue *g′* and flue *g″*, with a water-reservoir, I, all substantially as and for the purposes herein set forth.

8. In combination with the flues *g′ g″*, the flue *g‴* with slot *e* and sliding damper O, all substantially as and for the purposes herein set forth.

9. The combination of the warming-chamber I′ with the flues G *g*, slotted and bent damper *m*, and flues *g′ g″*, all substantially as and for the purposes herein set forth.

10. The flue *g′*, spread outward at its center and arranged on the bottom of the reservoir I, as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 6th day of February, 1873.

JAMES R. HYDE.

Witnesses:
A. N. MARR,
CHARLES S. HYDE.