H. L. HOWSE.

Cooking-Stove.

No. 212,698. Patented Feb. 25, 1879.

Fig. 1.

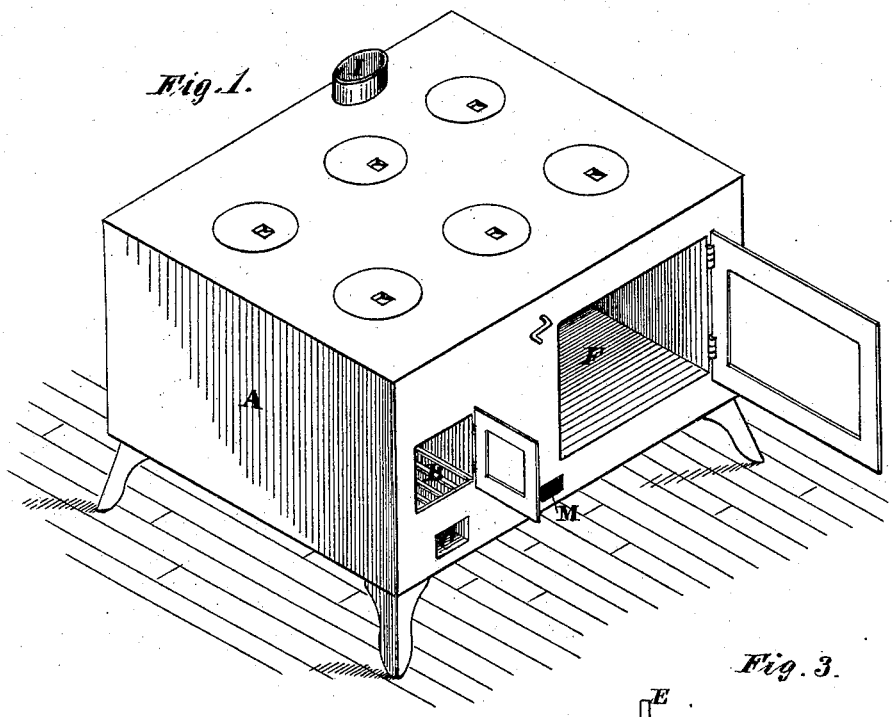


Fig. 2.

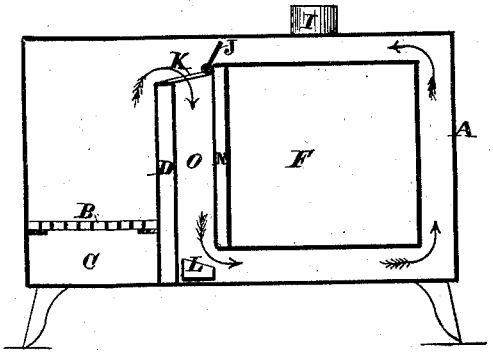
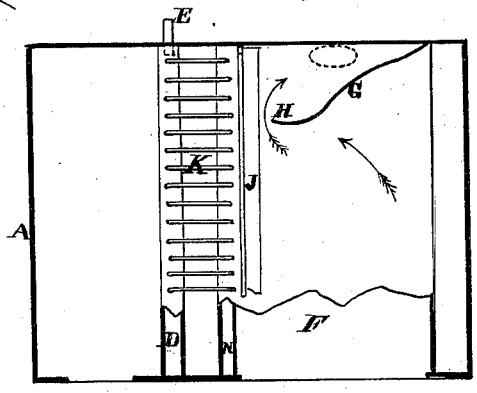


Fig. 3.



Witnesses

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Frank A. Burke

Inventor

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UNITED STATES PATENT OFFICE.

HENRY L. HOWSE, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO CHARLES R. BURRAGE, OF SAME PLACE.

IMPROVEMENT IN COOKING-STOVES.

Specification forming part of Letters Patent No. **212,698**, dated February 25, 1879; application filed December 12, 1878.

To all whom it may concern:

Be it known that I, HENRY L. HOWSE, of the city and county of San Francisco, and State of California, have invented an Improved Cooking Stove or Range; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to certain improvements in stoves or ranges which are intended to be used for cooking purposes; and it has for its object the more complete utilization of the heat and a novel use of the products of combustion, which are led from the fuel-grate over a peculiar water-back or diaphragm, and thence downward between this diaphragm and the oven, passing beneath and up behind the oven before being led over its top.

My invention consists of certain combinations of devices, as hereinafter described and claimed.

In order to more fully describe my invention, reference is made to the accompanying drawings, in which—

Figure 1 is a view of my improved stove. Fig. 2 is a vertical section. Fig. 3 is a view on a horizontal plane, the cover being removed and parts cut away.

A is the outer shell or body of my stove, which may be made of any suitable or convenient shape for the purpose intended. Within this outer shell the compartments are arranged as follows: The grate B, for the reception of the fuel, is placed in the ordinary position near the side, and has the ash-pit C beneath it. At one side of this grate is placed the diaphragm or water-back D, which consists of a casting extending from front to back of the stove, and from the bottom nearly to the top. This compartment is shallow from side to side, and it has nipples E E, for connecting with the water-pipes, so that this space may be kept constantly filled with a thin broad sheet of water, and as it is exposed to the heat of the fire in front and back it will heat a large quantity of water in a short time. When desired, a partition or diaphragm of fire-brick may be used instead of a water-back. Sufficient space is left above the top of this water-back to allow the heat and products of combustion to pass over it and thence downward, as shown, in the flue or space O, which is left between the water-back or diaphragm and the oven F. This oven is supported so as to have a space in front, beneath, and behind it, so that the heat flowing down in front will pass beneath the oven, and thence up behind it, and, lastly, over the top. A partition or diaphragm, G, extends diagonally across the top of the oven, reaching to the top plate of the stove, and the heated air must pass around the end H of this diaphragm before reaching the escape-pipe or chimney I. The two front holes in the top plate of the stove are placed directly over the fuel, while the other four shown in the present case are above the oven, and upon either side of the diaphragm G.

A damper, J, is fitted to stand across the space above the oven, and this damper may be opened upon starting a fire, so that the draft will be a direct one to the escape-pipe I. When the fire is well started this damper is closed, and the heat then passes beneath the oven, so that the bottom of the oven, usually the poorest-heated part of the stove, receives the full effect of the intensest heat from the fuel. The front of the oven is made with double walls N, which may simply inclose an air-space; or it may be filled with plaster-of-paris or other suitable non-conductor, so that the front side may not be made red-hot from the first action of the heat. A grate, K, is formed to extend from the top of the water-back, either in a straight or a curved line, back to the stove-top, and this grate prevents coal or fuel from falling into this flue between the water-back and the oven. At the bottom of this space is a narrow ash-pan, L, fitted to receive the ashes or soot which may be deposited there. This pan may be removed by a door at M, when desired.

By this construction I effect an important advantage in the use of heat, which is usually carried over the oven first, whereby a great portion of its intensity is expended in heating the top of the stove and the top of the oven, while the bottom of the oven is left with a comparatively small heat.

By my construction I produce, first, an effective water-back, and, secondly, I employ

the heat in a manner which will be the most effective with the use of the least fuel.

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

1. The water-back D, the oven F, the intervening flue O, and the fuel-grate B, as shown, in combination with the arched or inclined screen K, substantially as and for the purpose herein described.

2. The grate B, water-back D, and the oven F, with its surrounding flue O, arranged as shown, in combination with the diagonal partition or diaphragm G, dividing the space upon the top of the oven, and distributing and directing the heat, substantially as and for the purpose herein described.

3. The fuel-space and grate B, the diaphragm or water-back D, oven F, and the surrounding flue O, whereby the heat from the fuel acts upon both sides of the water-back or diaphragm, and passes under the bottom of the oven, as shown, in combination with the damper J, said damper serving either to direct the heat beneath the oven, or, when opened, to allow it to pass directly to the chimney, substantially as herein described.

4. The fuel-space and grate B, having the diaphragm or water-back D, extending to the bottom, with the intervening flue O, whereby the heat passes over the diaphragm, and then down between it and the oven, in combination with the oven F, said oven having its wall or walls N made double, to equalize the heat to the interior, substantially as herein described.

5. In combination with the fuel-space or grate B, the vertical diaphragm or water-back D, the oven F, and the intervening flue O, the independent removable ash-pan L and the door M, whereby this flue may be cleaned, substantially as herein described.

In witness whereof I have hereunto set my hand.

HENRY LANGLEY HOWSE.

Witnesses:
GEO. H. STRONG,
FRANK A. BROOKS.