

E. STEWART.
HEATING-STOVE.

No. 189,280.

Patented April 3, 1877.

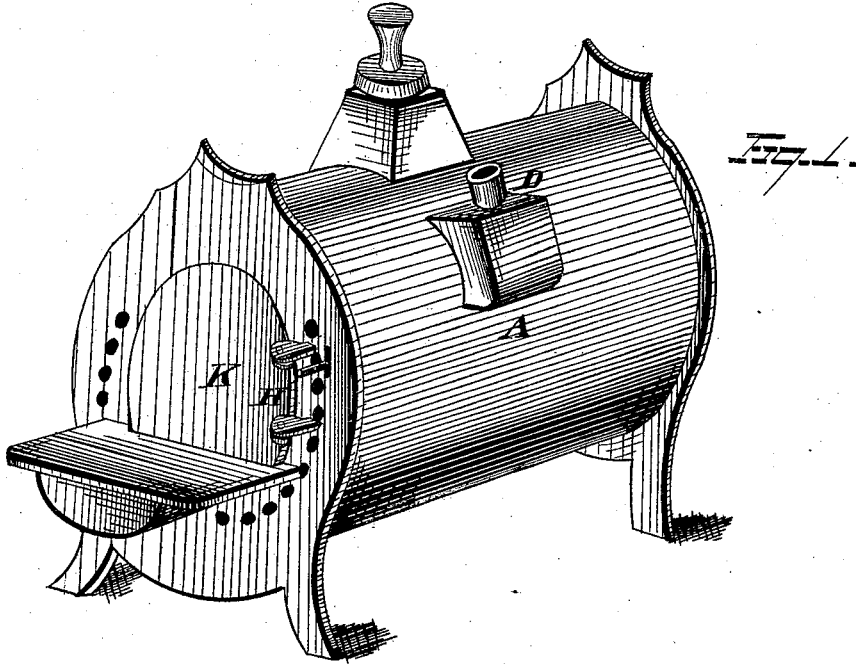


Fig. 2 -

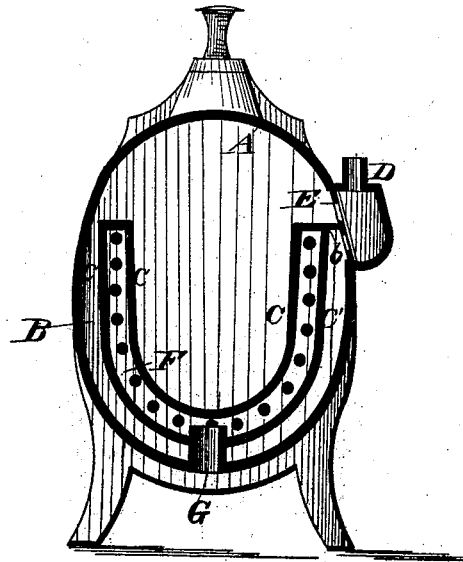
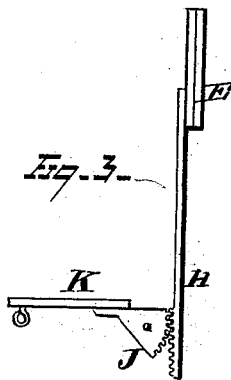


Fig. 3 -



WITNESSES

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EDWARD STEWART, OF FORT MADISON, IOWA.

IMPROVEMENT IN HEATING-STOVES.

Specification forming part of Letters Patent No. 189,280, dated April 3, 1877; application filed March 1, 1877.

To all whom it may concern:

Be it known that I, EDWARD STEWART, of the city of Fort Madison, county of Lee, and State of Iowa, have invented new and useful Improvements in Heating-Stoves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in heating-stoves, and is designed both to furnish a large heating-surface, and at the same time to protect the fire-box, that it may last the longer; my object being to construct a fire-box with triple heating-sheets about its sides and bottom, while its top will have but a single sheet, and by this means also provide a direct-draft connection of the fire-box with the exit-flue, so that, as desired, the products of combustion can quickly pass out, or that they may, on the other hand, be conducted through an indirect-draft passage, which will allow of their heat being saved and utilized by conduction through these several sheets formed about the bottom and sides of the fire-box. I place a double lining-wall within the fire-box, extending about its bottom and sides, leaving its top with a single sheet. This double lining forms a hot-air chamber, which is closed as regards the fire-box, but has free ventilation with the outer atmosphere, and an indirect-draft passage is also formed between the double lining and the outer wall of the stove. Thus I obtain a large heating-surface, and at the same time protect the lining of the fire-box from burning out.

Referring to the drawings, Figure 1 is a view, in perspective, of a stove embodying my invention. Fig. 2 is a transverse vertical section through the same, and Fig. 3 is a detail view of the damper device regulating the direct and indirect drafts in the same.

A represents the outer plate of the stove, having an air-passage, B, formed between the same and the double lining C C', and extending about the latter from its open connection at one side with the interior of the fire-box, down alongside and beneath the double lining C C', and, finally, up the opposite side of the

fire-box, where it connects freely with the exit-flue D. This exit side of the passage is closed from off the fire-box, so that communication with the hot-air passage can only obtain at one side of the fire-box, and air passing into the same is conducted around the lower horizontal section of the box; and thence immediately into the exit-flue.

A damper, E, regulates this exit-flue by being placed so as to open or close connection from the fire-box direct into the flue, which latter extends to either horizontal side of the partition-wall *b*, shutting off connection between the fire-box and the exit side of flue B. As this damper only governs the passage from the fire-box chamber direct to the flue, while the connection between the air-passage B and the said flue is uninterrupted and perfectly free, it follows that by opening the damper the products of combustion will seek an immediate outlet thereby without traversing the air-passage; but on closing this damper, the hot air will be forced to take a circuitous course through passage B, and thus out by that lower portion of the flue D which connects with the same.

The fire-box is provided with a double lining, C C', forming a hot-air chamber, F, which is closed as regards the fire-box, but has free ventilation with the outer atmosphere. Any suitable manner of connecting this chamber with the air may be employed. Thus perforations, slots, or lattice open-work may be made in the rear end plate of the stove, opening into the said chamber, and also in the stove-door, corresponding to the front end of the same.

A through draft or current is thus obtained, while an air-feed opening, G, in the lower central portion of the stove conducts air directly into the chamber from below, and supplies it constantly with cold air, which latter, becoming heated, passes out only through the end openings of the chamber.

In Fig. 3 I show in detail my manner of automatically regulating the damper, so that upon opening the stove-door a direct draft to the flue will be furnished, and upon again shutting the same the direct draft will be closed, and the products of combustion forced to take the indirect-draft passage. The slid-

ing damper E is provided with the damper-rod H, extending forward and out through the front end of the stove, its projecting extremity being toothed or formed as a rack-bar, which is engaged by a pinion, J, suitably secured to the hinged side of the stove-door K. As the door is swung open, the pinion and rack operates the damper-rod, so as to open the draft-connection direct between the fire-box and the exit-flue, while on swinging the door to, the damper-rod is drawn out again, thus closing the direct draft.

If desired to operate the damper without opening the door, the damper-rod can be raised up in its slot in the front end of the stove, thus disengaging its rack side from the actuating-pinion, and then the rod can slide backward and forward independently of the door, and the draft be correspondingly regulated.

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

1. The double lining, forming a hot-air chamber about the bottom and sides of the fire-box, the indirect-draft passage of which latter is be-

tween the said hot-air chamber and the wall of the stove, substantially as described.

2. The combination, with the fire-box, provided with a double lining, forming the hot-air chamber, of the indirect-draft passage between the said double lining and the wall of the stove, substantially as described.

3. The hot-air chamber formed at the bottom and sides of the fire-box, and communicating with the open air by lower feed and end exit passages, as described, the said fire-box being provided with an indirect-draft passage between the hot-air chamber and the wall of the stove, substantially as described.

4. The combination, with the damper and connecting-rod, of the swinging stove-door, communicating motion to the same, the said rod and door engaging by rack and pinion mechanism, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 22d day of February, 1877.

EDWARD STEWART.

Witnesses:

EDWIN D. SMITH,
M. F. RIZER.