F. HOWES.

OVENS.

No. 185,750. Patented Dec. 26, 1876.

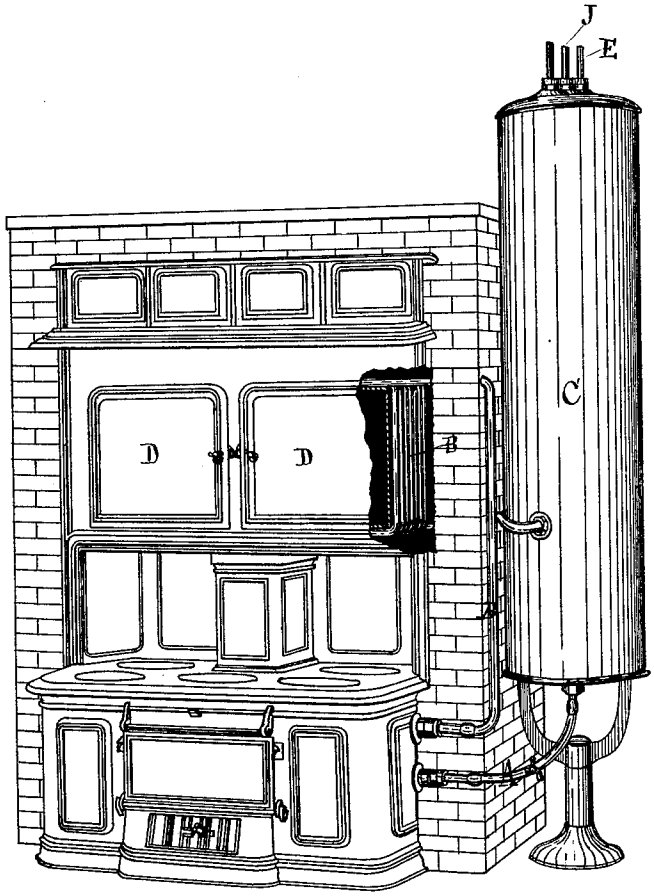

Fig. 1.

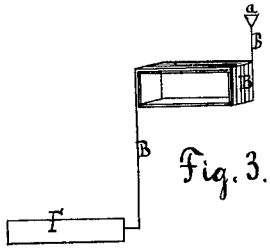

Fig. 3.

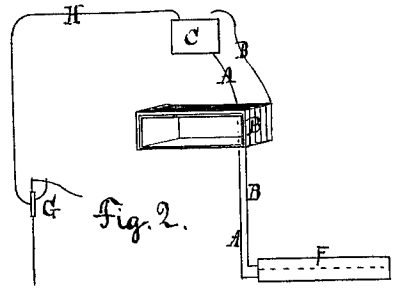

Fig. 2.

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FREDERIC HOWES, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN OVENS.

Specification forming part of Letters Patent No. **185,750**, dated December 26, 1876; application filed November 24, 1876.

To all whom it may concern:

Be it known that I, FREDERIC HOWES, of Boston, county of Suffolk and State of Massachusetts, have invented certain Improvements in Ovens for Baking, of which the following is a full, clear, and exact description. reference being had to the accompanying drawings.

My invention consists in the combination, with an oven, of a vessel for heating water, and pipes or other water-ways through which the hot water can be carried about the oven.

In the drawings, Figure 1 illustrates my invention as applied to a common form of kitchen-range, and Figs. 2 and 3 are diagrams.

The pipe A leads into the water-back or other vessel in which the water is heated, and the pipe B leads from the water-back. These two pipes usually connect the water-back directly with the copper vessel C, commonly called the "boiler," although it is in fact a reservoir of water, the true boiler being the water-back; but in a range embodying my invention the outlet-pipe B from the water-back, and into which the hot water rises from the water-back, is carried up to and about the ovens D D.

In the drawing, this pipe B is represented as made of lead and bent around the ovens; but in practice, sections of iron pipes with elbows will usually be used. Care should be taken, where my invention is applied to the common range, to so arrange the pipe B in relation to the vessel in which the water is heated, and to the pipe A, as to insure a circulation of the water, the hot water rising and surrounding the ovens, and the cooler water entering the water-back to be heated.

The arrangement shown in the drawing is the best known to me for ordinary domestic ovens, and can be applied readily to kitchen-ovens now in use. For larger ovens the contrivance will be the same. The vessel C will then represent a water-tank or reservoir, situated above the vessel F, in which the water is heated, as shown in Fig. 2. In this figure G represents a force-pump, and H a pipe leading from it to supply the reservoir C. When the reservoir C is dispensed with, the pipe B, after rising and surrounding the oven or itself forming the walls of the oven, should rise some distance — far enough to prevent the water boiling over—as shown in Fig. 3, or the pipe B may connect with the pipe A; but in this case suitable valves will be required to prevent the pressure becoming too great, and also proper means for refilling the heater, as there will be more or less waste of water whenever the valve blows off; and it is important that the pipes B and A, as well as the heater F, should be kept nearly full of water. Consequently, in all cases, I prefer to use a reservoir, C, separate from the vessel in which the water is heated. When the pipe B enters this vessel below the water-level it should be open, or else should have a blow-off pipe, E, through which the steam can escape. In Figs. 2 and 3 the top of pipe B is the blow-off pipe. The enlargement *a* of pipe B allows the water to be replenished. In Fig. 1 of the drawings the pipe J connects with a second reservoir of water above the reservoir C, and the pipe E rises to a distance of a foot or two above the level of the water in the second reservoir.

What I claim as my invention is—

1. The combination, with the oven D, of the water-back or other vessel F, in which the water is heated, and the pipe B surrounding the oven, the combination being and operating substantially as described.

2. The combination, with the oven D, of the vessel F, in which the water is heated, the reservoir C, and the pipe B, surrounding the oven, all arranged and operating substantially as described.

FREDC. HOWES.

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