(No Model.)

W. E. PRALL.

COOKING STOVE AND RANGE.

No. 382,241. Patented May 1, 1888.

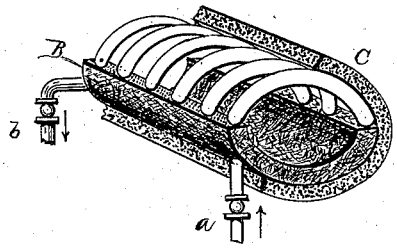


Fig. 1.

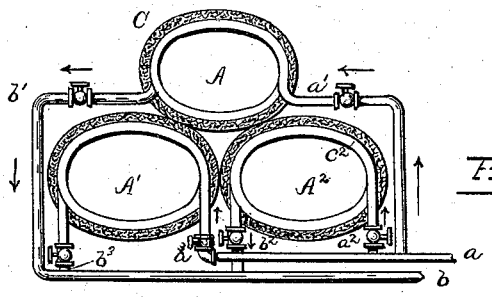


Fig. 2.

Fig. 3.

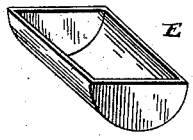


Fig. 4.

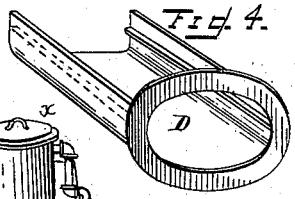
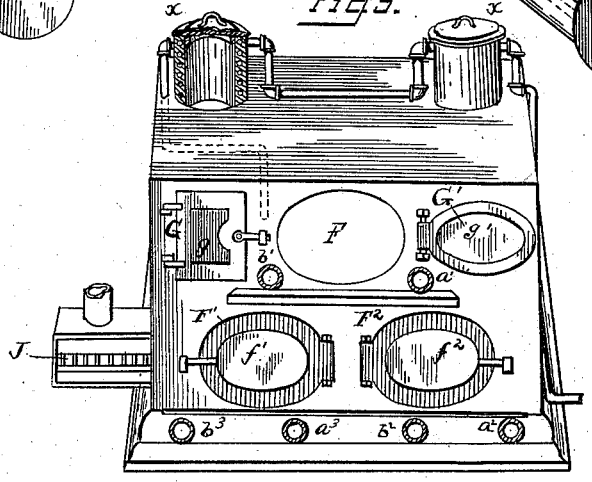


Fig. 5.



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UNITED STATES PATENT OFFICE.

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COOKING STOVE AND RANGE.

SPECIFICATION forming part of Letters Patent No. 382,241, dated May 1, 1888.

Application filed October 11, 1887. Serial No. 252,087. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. PRALL, a citizen of the United States, and a resident of Washington, in the District of Columbia, have invented certain new and useful Improvements in Cooking Stoves and Ranges, of which the following is a specification.

My invention relates to an improvement in steam or hot-water cooking ranges.

I have found from experiments that in order to get the required temperature for roasting and baking it became necessary to have a very high pressure, as the temperature and pressure increase and diminish in corresponding ratios when water or steam is employed as the medium of transmission, and in view of that established fact I have endeavored in the construction of this apparatus the accomplishing of the highest results without incurring danger from overpressure.

Figure 1 of the accompanying drawings shows in perspective one of my improved ovens. Fig. 2 is an end view of a series of ovens arranged in connection with each other and with the necessary supply-pipes. Fig. 3 represents one of the cooking-pans suitable for such an oven. Fig. 4 is a lining for an oven, provided with lugs or ways on which to slide partitions for dividing the ovens into sections for baking bread, pastry, &c. Fig. 5 is a front elevation of a range or a stove provided with three baking-ovens and two warming-ovens and two boiling-tanks, also a grate for broiling purposes.

In the practical construction of my invention the ovens are made of wrought-iron pipe of a suitable size, about one inch in diameter, formed into a coil of an oblong shape and of the desired depth and diameter. The pipes may be wound close together, so as to touch each other, or a considerable distance may be left between them. The lower portion of the cylinder thus formed may be filled in between the coils with some material (B, Fig. 1) which is a good conductor of heat, which may consist of separate pieces or solid bands, so as to form a continuous heating-surface, the same as if it were one solid iron piece, (or, if desired, the filling may extend around the cylinder or oven, so as to form a continuous smooth heating-surface therein.) The upper part of the oven thus constructed should be left with the pipes exposed from the inner side, as in that condition the largest amount of heating-surface would be exposed to the interior of the oven. The outer surface of the coil should be covered with some material (*c*, Fig. 1) known as a non-conductor, to prevent the radiation of heat in that direction. This result may be accomplished by a covering of mineral wool, asbestus, hair-felt, or a plaster of composition. As there are so many kinds of material adapted for this purpose, I do not confine myself to any one of them or to the manner of applying them. It will readily be seen that by constructing an oven in this manner the greatest amount of heating-surface will be obtained in the simplest manner, and that a great pressure may be carried without any danger, as wrought-iron pipes of so small a diameter will easily withstand a pressure of several hundred pounds to the square inch, while if the ovens were constructed of cast-iron cylinders of the required diameter for an oven and a pressure approximating that which could be carried with perfect safety in small wrought-iron tubes were created therein there would be great danger of their bursting, even if constructed of great weight and thickness; besides there would be great difficulty in making tight joints between the cylinders of such a character.

E, Fig. 3, represents a removable cooking-pan suitable for an oven formed as described; and D, Fig. 4, a lining for an oven provided with lugs or ways on which to slide partition-plates for dividing the ovens into sections for baking bread, pastry, &c.

In Fig. 2 I have shown an arrangement of three ovens made as herein described, provided with water-supply pipes *a*, *a'*, *a*^{2}, and *a*^{3}, and water-return pipes *b*, *b'*, *b*^{2}, and *b*^{3}, and in Fig. 4 a range or stove of a form or construction adapted to receive such an arrangement of ovens. The location of the ovens is shown at F, F', and F^2, and the lower two are provided with doors having glass panels *f'* and *f*^{2}, and the upper oven, F, may also be provided with

a similar door, if necessary. The pipes a', a^2, and a^3 supply the ovens with the necessary heating medium, and the pipes b', b^2, and b^3 return the same. The glass doors serve for the admission of light to the oven, whereby the contents thereof may be inspected without opening the doors, and thus avoid the reduction of temperature that would result from so doing, which would arrest the process of cooking for a time and greatly injure some kinds of food. This range is also provided with warming-ovens G and G' (having doors g and g') which are not provided with coils for heating or baking, but in which articles of food may be warmed by radiated heat only; also with upright boiler-tanks x x, which may be supplied with the heating medium from pipe b', as shown in dotted lines. These tanks may be made by first coiling the pipe in the desired form and casting the metal around the coil thus formed, or by filling in between the coils, as herein stated with reference to the oven shown in Fig. 1. The pipes which form the oven may be made square in cross-section, if desired, and it is evident that many different forms may be adopted without departing from the spirit of my invention.

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

1. An oven for cooking stoves or ranges, composed of a coil of pipe adapted to the circulation of steam or hot water, the spaces between the coils being filled in with a heat-conducting material, substantially as shown and described.

2. An oven for cooking stoves or ranges, composed of pipes, the space between the pipes being filled in with a heat-conducting material, and in combination with a covering of asbestus or equivalent substance, substantially as shown and described.

3. An oven for cooking stoves or ranges, composed of steam or hot-water circulating pipes, the space between the pipes in the lower half of the oven being filled in with heat-conducting material, substantially as shown and described.

4. An oven for cooking stoves or ranges, composed of steam or hot-water circulating pipes, the space between the pipes in the lower half of the oven being filled in with heat-conducting material, in combination with a covering of asbestus or equivalent substance, substantially as shown and described.

5. An oven for cooking stoves or ranges, composed of steam or hot-water circulating pipes, constructed substantially as shown and described, in combination with a lining, D, provided with lugs or ways, substantially as and for the purposes set forth.

6. The combination, with a cooking stove or range, of an oven or ovens consisting of coils of pipe adapted to circulate steam or hot water, the space between the coils being filled with heat-conducting material, and the ovens surrounded with non-heat-conducting material and provided with pipes a and b, substantially as shown and described.

7. The combination, with the frame of a cooking stove or range, of a series of pipe-ovens, arranged together as shown, each being surrounded with non-heat-conducting material and opening on or through the face-plate of a stove or range, warming-ovens, as G and G', and boiler-tanks X X, substantially as shown and described.

Signed at the city of New York, in the county of New York and State of New York, this 5th day of October, 1887.

WM. E. PRALL.

Witnesses:
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