(No Model.)

J. FRIES.

HOUSE WARMING APPARATUS AND STOVE.

No. 383,119. Patented May 22, 1888.

Fig. 1.

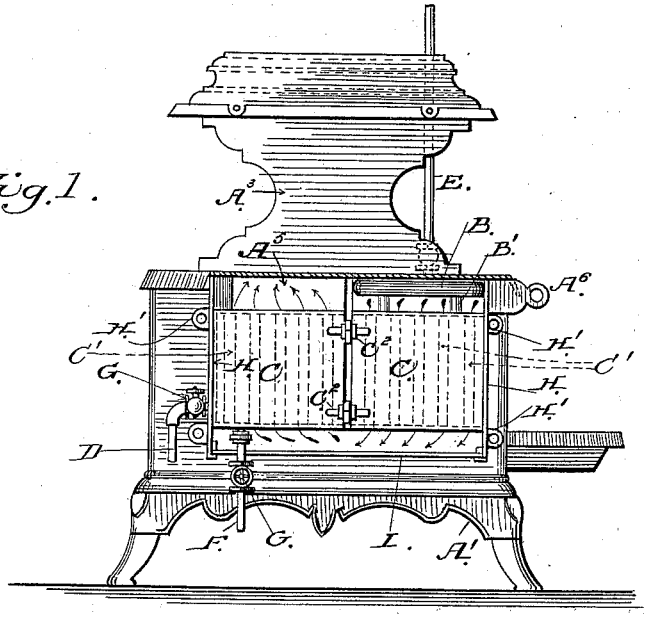


Fig. 2.

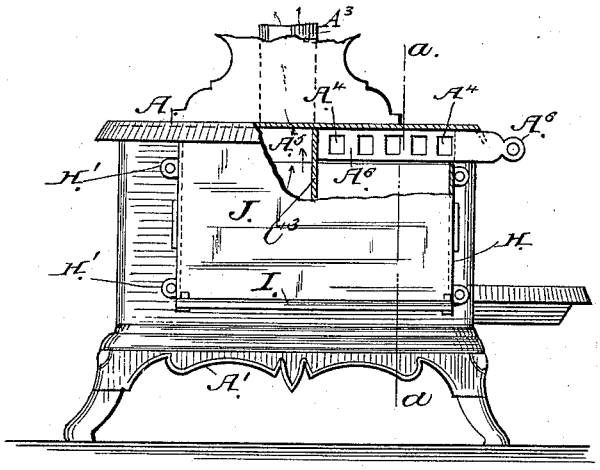
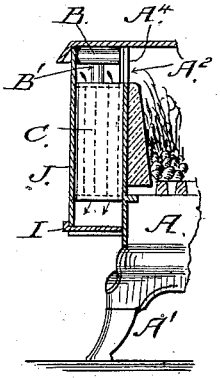


Fig. 3.



Witnesses.

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HOUSE-WARMING APPARATUS AND STOVE.

SPECIFICATION forming part of Letters Patent No. 383,119, dated May 22, 1888.

Application filed June 10, 1886. Serial No. 204,782. (No model.)

To all whom it may concern:

Be it known that I, JACOB FRIES, of Reading, Pennsylvania, have invented certain new and useful Improvements in House-Warming Apparatus and Stoves; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to special apparatus for utilizing the heat generated in an ordinary kitchen stove or range for the purpose of heating other rooms in the house, the latter being provided with radiators or pipes through which water heated in my apparatus is circulated.

Figure 1 is a side elevation of a cooking-stove, showing my water-heater attached, with the wall of its inclosing-case removed, revealing its internal arrangement. Fig. 2 is a similar elevation, a portion of the inclosing-case being cut away and the water-chamber removed, so as to show the openings in the stove. Fig. 3 is a partial cross-section through *a a* of Fig. 2. The refractory lining shown should preferably be omitted, and in stoves especially adapted to have my apparatus attached the heater may be directly exposed to the fire.

A represents any ordinary form of cooking-stove, having a fire-pot, A^2, communicating with a smoke-flue, A^5.

A^4 are heater inlet-openings from the fire-pot, adapted to be closed by a damper, A^6, and an undampered outlet-opening, A^5, connects the casing of the water-heater with the smoke-flue of the stove.

My water-heater is preferably constructed with a horizontal flat reservoir, B, connected by pipes B′ with the main water-chamber C. The latter is shown as made up of two sections, each in the shape of a rectangular box provided with vertical open flues C′. They are united by union-connections C^2, top and bottom, and are separated by a partition, C^3, at the top of the casing. The inclosing-case, as shown, is formed of separate cast-iron sides, back, and bottom, the overlapping top of the stove in the form illustrated forming the top of the casing. A space is left between the bottom of the heater and the bottom of the casing, which forms a communicating passage between sections and collects any dirt carried from the fire-box. Provision is made to readily remove the latter. Pipes D, E, and F, with regulating-cocks G, respectively supply cold water, convey the hot water to the radiators, &c., and return it again to the heater.

The apparatus described is adapted to be readily connected to many old forms of stoves without involving any great trouble or expense, but may be applied with better advantage to new stoves especially designed for it. When the heater inlet-openings A^4 are closed by the damper A^6, the products of combustion are passed around the oven, or direct to the flues, as may be desired, or as the design of the stove will permit. This construction forms no part of my invention, and is therefore not shown. When the damper is open, they pass into the heater-casing, strike the horizontal reservoir B, are deflected downward through the flues C′ on one side of the partition C^3, then upward through those on the other side, and thence through any suitable outlet, A^5, to the smoke-flue.

When the damper A^6 is closed, the water in the heater is only heated by its direct proximity to the fire, and the products of combustion may be used to heat the oven, if desired. When open, the heating-surface in the flues and outside of the heater is so extensive that the water inclosed is very quickly and thoroughly heated and a positive and rapid circulation maintained throughout the system of piping. During the summer season the radiators may be cut off and the water circulated only through a hot-water reservoir.

The casing may be made of sheet-iron or otherwise varied from the construction shown without interfering with its necessary functions. This also applies to the water-chamber, which may, for instance, be arranged to pass the products of combustion around instead of through the flues, as shown, and the heating-surface may be increased and the cir-

culation improved by extending it downward still farther, if desired.

What I wish to secure by Letters Patent are the following claims:

1. The combination, with a stove having heater inlet-openings from the fire-pot and having outlet-opening communicating with the smoke-flue, of a water-heater consisting of a casing communicating with said openings, and having a partition, C^3, between them, said casing inclosing a tubular water-chamber connected with supply, delivery, and return water-pipes, and extending below the bottom of said tubular chamber, whereby the products of combustion may be conducted downward through said chamber on one side of said partition and upward on the other side before reaching the smoke-flue, substantially as and for the purpose set forth.

2. The combination, with a stove having heater inlet-openings from the fire-pot and heater outlet-opening communicating with the smoke-flue, of a water-heater consisting of a casing communicating with said openings, and having a partition, C^3, between them, said casing inclosing a reservoir, B, placed above said inlet-openings and attached to a tubular water-chamber connected with supply, delivery, and return water-pipes, and extending below the bottom of said tubular chamber, substantially as and for the purpose set forth.

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