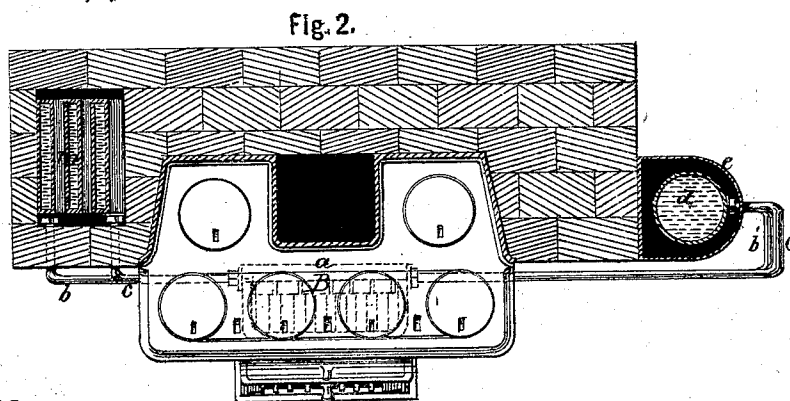
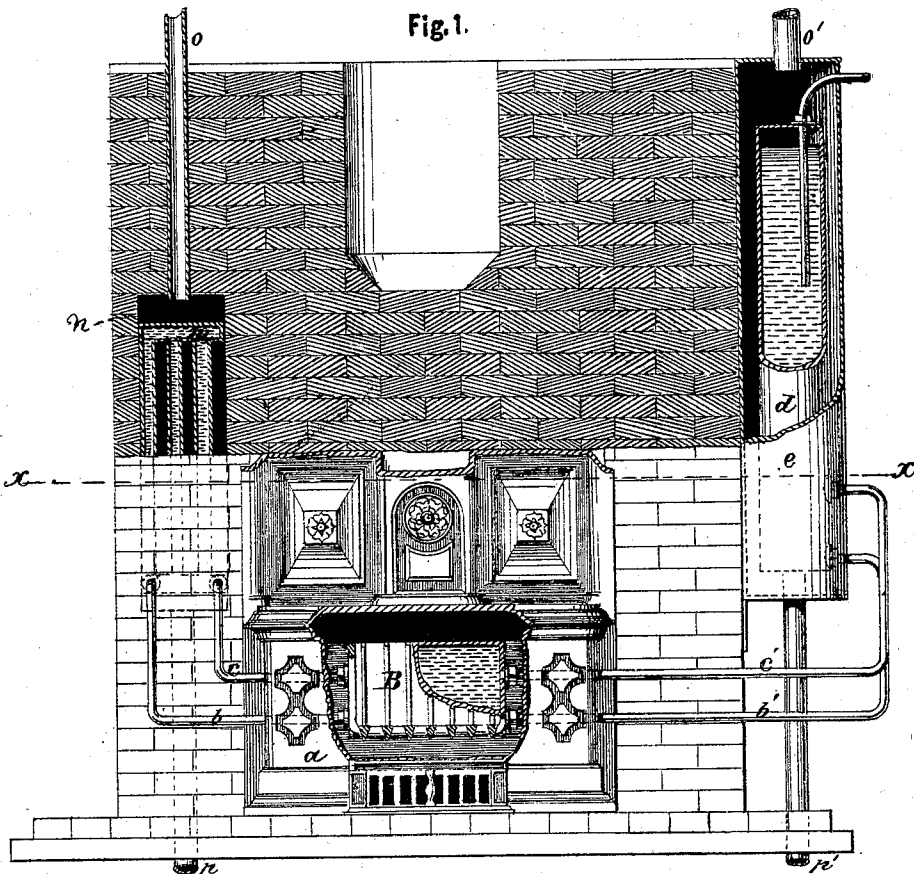


H. L. PALMER.

Hot-Water Heating Apparatus for Ranges.

No. 134,765.

Patented Jan. 14, 1873.



WITNESSES.

Jas. L. Ewin

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UNITED STATES PATENT OFFICE.

HENRY L. PALMER, OF NEW YORK, N. Y.

IMPROVEMENT IN HOT-WATER HEATING APPARATUS FOR RANGES.

Specification forming part of Letters Patent No. 134,765, dated January 14, 1873.

To all whom it may concern:

Be it known that I, HENRY L. PALMER, of the city, county, and State of New York, have invented certain Improvements in Heating Apparatus, of which the following is a specification:

This invention consists in heating the apartments of a building by means of a radiator heated by steam or hot water conveyed to it by pipes from the water-back of a cooking-stove or range, and situated in an air-chamber, from which the heated air passes through pipes into the apartments to be warmed, the cold air being introduced into the air-chamber by pipes or other equivalent means.

In the accompanying drawing, Figure 1 is a front view, partly in section, of a range and appurtenances illustrating the invention; and Fig. 2 is a horizontal section on the line *x x*, Fig. 1.

a represents a range or cooking-stove provided with a water-back, B, from which the pipes *b b' c c'* branch and extend into the reservoir or boiler *d*, surrounded by the casing *e*, and into the radiator *m*, situated in the air-chamber *n*, which may be made in the jamb of the fire-place or in any other convenient place. *o* is a pipe connected with the air-chamber *n*, and *o'*, a pipe connected with the space containing hot air between the boiler *d* and its casing *e*. These pipes are carried to the apartments to be heated in the usual manner, and convey the hot air surrounding the radiator or boiler to the rooms desired to be warmed. *p p'* are pipes which extend respectively from the lower part of the air-chamber *n*, in which the radiator is situated, and from the space between the boiler and its casing, to the outside of the building, or to the lower rooms for the supply of cold air. If preferred, cold air may be introduced from the room in which the range is situated. Cold water is introduced into the boiler by a feed-pipe in the usual manner, and passes thence into the water-back, where it becomes heated, and circulates through the pipes *b b' c c'* connecting it with the radiator *m* and boiler *d*. The hot water and steam thus generated heats the air in the chambers in which the radiator and

boiler are situated, which is conveyed by means of the pipes *o o'* to the apartments to be heated, its place being filled by cold air passing in through the pipes *p p'*. The water-boiler *d* may be the common hot-water reservoir for kitchen and bathing purposes. This does not constitute an essential part of my invention.

By surrounding it with a casing provided with air-pipes *p'* and *o'* the said boiler may be made to serve as the radiator by which air is heated, or a radiator of any preferred form may be employed, as illustrated at *m*, the said radiator being filled with either water or steam, and the generation of the steam or heating of the water being effected, if preferred, by a separate water back or coil of any form distinct from that which is employed to heat the water in the customary boiler. This water-back may, if preferred, be supplied from a separate reservoir, or it may be in direct connection with the supply-pipe.

To prevent excessive pressure and cause a constant circulation through the radiator, the water or steam may be returned to the reservoir or boiler, or steam may be discharged into the smoke flue or chamber through a pipe guarded by a safety-valve.

The boiler and its casing are but one form of my invention.

By the use of the casing the radiation of heat of the boiler is utilized, and in warmer days, when the heat is not wanted in other rooms, by closing the air-pipes *o'* or *p'*, the upper rooms are not warmed, and the temperature of the kitchen itself is kept down.

I claim as new and of my invention—

1. The water-back B, reservoir *d*, radiator *m*, and connecting-pipes *b b' c c'* combined and arranged substantially as herein set forth, so that the said water-back will act as a circulating as well as a heating medium.

2. The combination of the reservoir *d*, the radiator *m* placed within a chamber adjacent to the range, the water-back or heating-coil B interposed between the said reservoir and radiator, the connecting-pipes *b b' c c'* permitting a constant circulation of water through the water-back, between the reservoir and ra-

diator, the pipe *p* for supplying cold air to the chamber *n*, and the pipe *o* for conducting heated air from the said chamber to apartments to be warmed, all substantially as herein set forth.

3. The combination of the water-boiler *d*, casing *e*, and air-conducting pipes *p o*, ar-

anged substantially as described, to provide for employing the water-boiler *d* for heating purposes.

H. L. PALMER.

Witnesses:

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