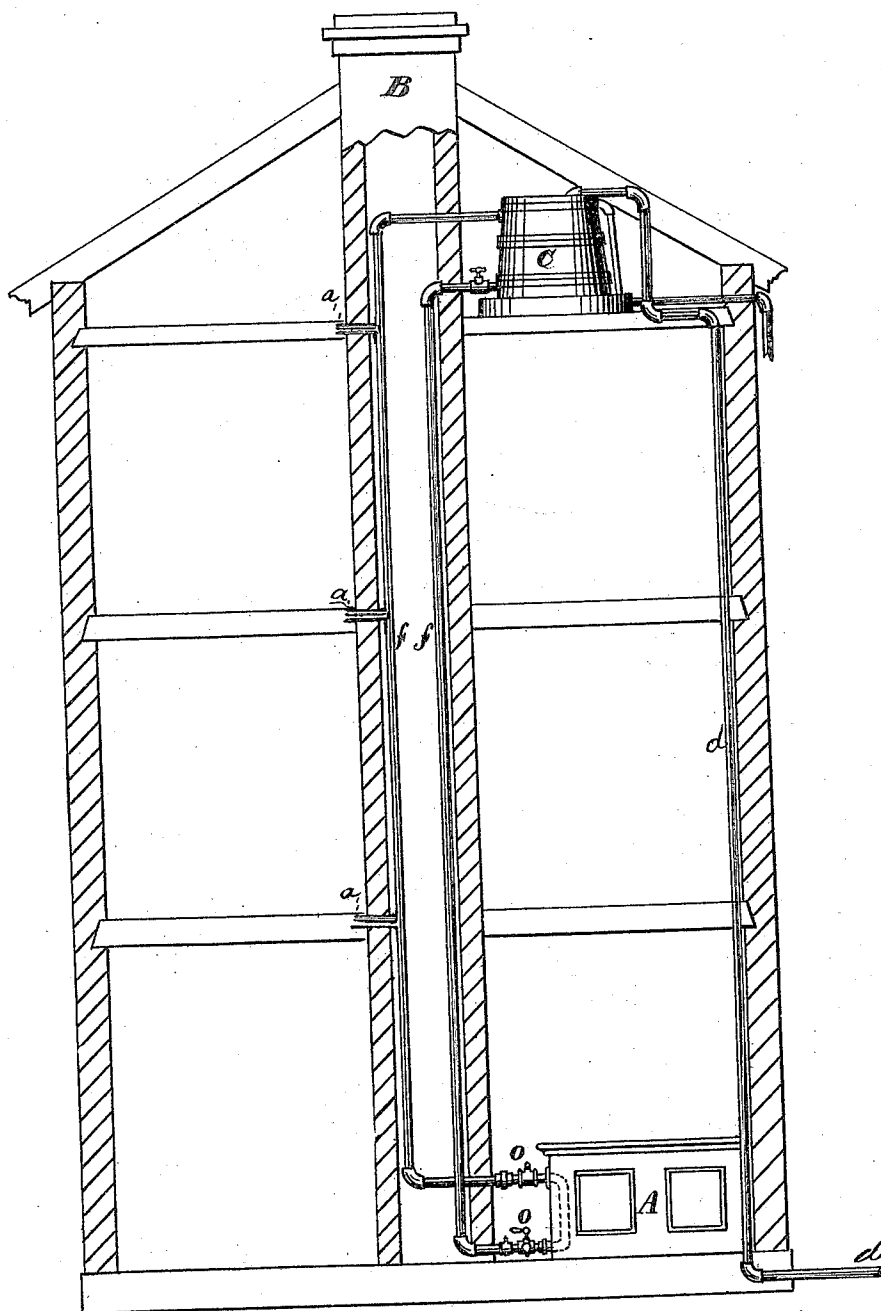


J. H. MITCHELL.

WATER-HEATING ATTACHMENT FOR STOVES AND RANGES.

No. 172,334.

Patented Jan. 18, 1876.



Witnesses

Geo. H. Strong.
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UNITED STATES PATENT OFFICE.

JAMES H. MITCHELL, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN WATER-HEATING ATTACHMENTS FOR STOVES AND RANGES.

Specification forming part of Letters Patent No. **172,331**, dated January 18, 1876; application filed November 27, 1875.

To all whom it may concern:

Be it known that I, JAMES H. MITCHELL, of San Francisco city and county, State of California, have invented a Water-Heating Attachment for Stoves and Ranges; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention without further invention or experiment.

The object of my invention is to provide an improved water-heating attachment for stoves and ranges, to be used instead of the copper boiler or reservoir ordinarily employed for that purpose. It is well known that the copper boilers or reservoirs at present in general use for supplying hot water in houses are liable at times to interfere with the cooking operations of the stove or range owing to the abstraction of heat therefrom by the rushing in of a quantity of cold water to supply a vacancy caused by drawing off water from the boiler, thus often lowering the temperature when it is necessary to maintain a uniform or high degree of heat for cooking or baking purposes. There are also many other disadvantages connected with the use of these boilers, such as their liability to leak, collapse, burst from freezing, &c.

By my improved arrangement for heating water and supplying hot water to houses, I avoid these difficulties, and secure various other advantages which will be hereafter described.

Referring to the accompanying drawing, the figure is a vertical section, showing my apparatus.

Let A represent a stove or range, and B the chimney, which passes upward through the house, and into which the stove-pipe enters. Instead of surrounding the stove or range with a water-jacket for supplying hot water to a boiler located above it, I place the hot-water tank or reservoir C in the upper story or attic of the building, as represented, or upon the roof, as found most convenient. This tank can be made of wood or metal, and its upper end can be left open like any ordinary water-tank. A water-pipe, *d*, leads from the water-main in the street, or other source of

supply, and an ordinary cock serves to keep the tank filled. I then lead a pipe, *f*, from near the bottom of the tank *c* through the wall of the chimney B, and thence down along the wall inside of the chimney to a point opposite the stove or range. It then passes through the wall of the chimney, and into the stove or range, where it is coiled in the fire-chamber, and thence is led back through the wall of the chimney; thence up along the inside of the wall, where it again passes through the wall, and into the tank C near its top. This pipe, it will readily be perceived, is a circulating pipe, by means of which the water in the tank C can be heated to the boiling-point. As the water in the coil, which is inside of the fire place, becomes heated, it rises in the pipe, giving place to the colder water, and thus a circulation is established and maintained until all of the water in the tank is heated to a uniform temperature. Branch pipes *a a a* can be led off from the circulating pipes *f* to any part of the house, so as to supply hot water in every room, if desired, and suitable cocks *o o* will be applied between the stove or range and chimney, by means of which hot water can be drawn in the kitchen, and which will serve, when desired, as a means of cleaning out the pipes and tank.

When hot water is drawn off from the pipes the cold water which takes its place in the tank will be raised to a considerable temperature before it reaches the range, so that it cannot appreciably affect the heat on the range.

While I thus do away with the ordinary copper boiler, I provide for supplying a double quantity of water in a more convenient manner throughout the house, and as the circulating pipes pass up close against the heated wall inside of the chimney, the loss by radiation is diminished at least fifty per cent., while in cold weather the wall of the chimney will retain sufficient heat through the night to keep the water in circulation, and therefore prevent it from freezing. By this arrangement I am able to supply a much larger quantity of hot water, and more direct to any part of the house, and at the same time avoid the use of lead pipes, the oxidation of which is known to be poisonous. Any kind of stove or range can be employed in connection with this circula-

tor with much less heating-surface in the fire-chamber, thereby saving a large percentage of fuel. The pipes can readily be detached from the stove or range without the aid of a plumber by simply turning off the water at the stops *o o* between the chimney and stove or range, and disconnecting the coupling which connects them.

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

In combination with the hot-water tank *C*, located in the upper part of a building, the circulating pipes *f* leading from said tank into the stove or range, and back again into the tank *C*, and provided with one or more branch pipes *a*, substantially as and for the purpose specified.

JAMES H. MITCHELL.

Witnesses:

GEO. H. STRONG,
JNO. L. BOONE.