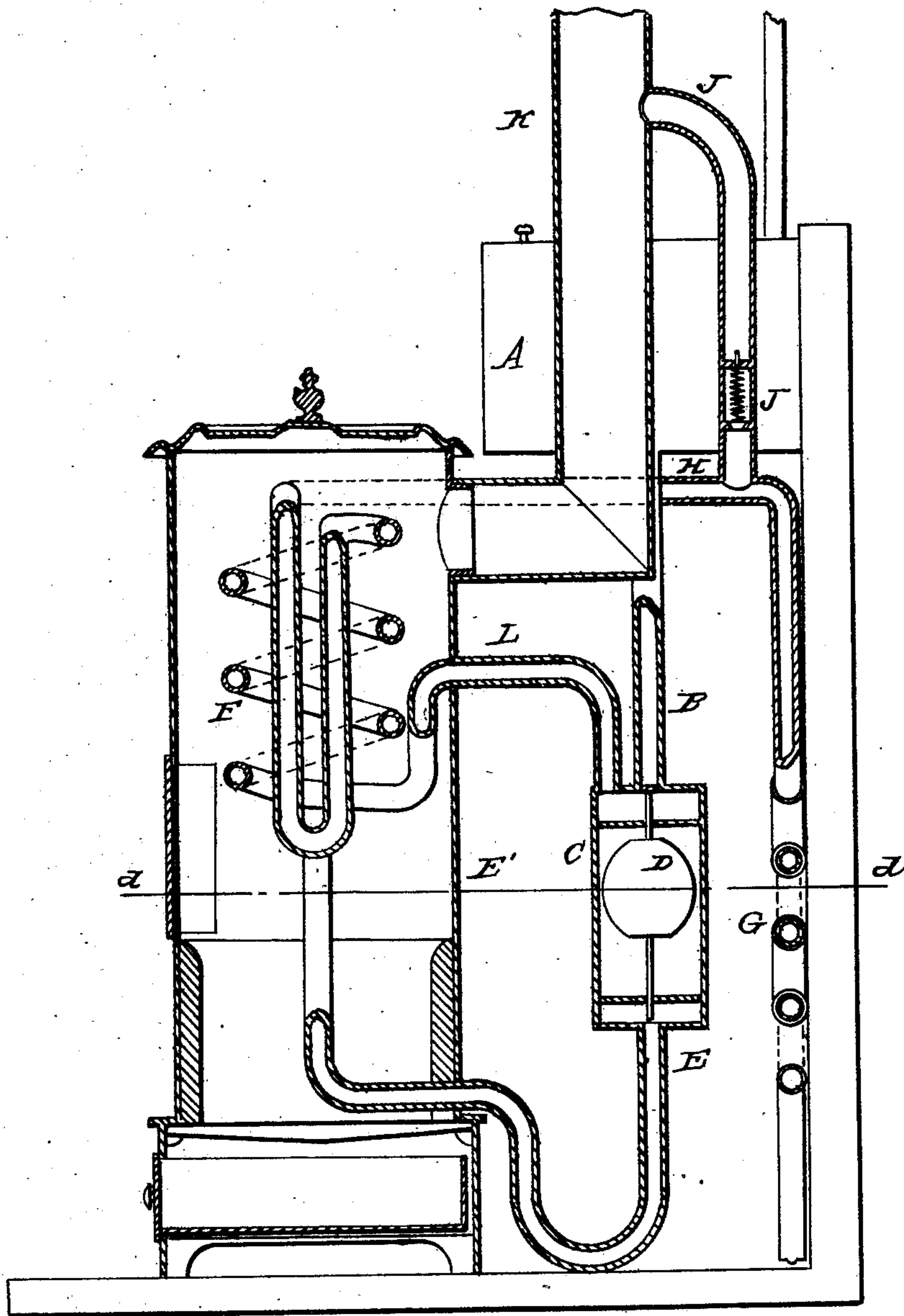


E. B., J. S. & W. S. CLARK.

Steam Heater.

No. 69,542.

Patented Oct. 8, 1867.



Witnesses.

Baltus DeLong
J. W. Webster.

Inventors.

E. B. Clark

J. S. Clark by their atty

W. S. Clark Baldwin & Son

United States Patent Office.

EDWARD B. CLARK, JOSIAH S. CLARK, AND WILLIAM S. CLARK, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 69,542, dated October 8, 1867.

IMPROVEMENT IN STEAM-HEATERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, EDWARD B. CLARK, JOSIAH S. CLARK, and WILLIAM S. CLARK, all of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Steam-Heating Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which makes part of this specification, and which represents a vertical section through our improved heating apparatus, as applied to an ordinary chamber-stove.

It is the object of our invention to combine with an ordinary stove or with a range a steam-heating apparatus, so that while deriving the requisite heat from the stove or range in the room in which it is placed we may utilize the same heat by making it generate steam, which is conducted to any other part of the building where it may be required. To these ends our invention consists in arranging a coil of steam pipes within the fire-chamber of a stove, range, or furnace, and connecting them directly with the water-supply in such a manner as to generate steam without the use of a boiler, and to conduct the steam thus generated through suitable pipes to the apartment to be warmed by it; an automatic stop-valve being so arranged in the water-supply pipe as to keep the water at a uniform height in the fire-chamber, to prevent the burning of the pipes, and yet to supply water as fast as it is vaporized. Our invention further consists in a novel arrangement of the pipes in the fire-chamber. Our invention further consists in a novel method of balancing the steam pressure on the supply-valve so as to leave its motions uncontrolled save by the pressure of the supply water.

To carry out the objects of our invention, we convey the water from a street main, hydrant, or from a tank, A, (situated in any convenient location,) through a feed pipe, B, into a water-drum, C, provided with a float-valve, D, which prevents the water from rising above the proper water line *d*. A water pipe, E, leads from the bottom of the drum C into an ordinary cylinder-stove, E', to the upper portion of which it ascends in a spiral coil, F. It is then bent down within the coil into a U shape, and up again to the top of the stove, (to increase the surface exposed to heat,) whence it leads off to a coil of pipes, G, which may be situated in the same room with the stove, or may be in another apartment, or in any place where it is desired. The exit pipe H is provided with an escape pipe, J, in which is a safety-valve, I, leading into the stove pipe K to prevent the pressure from becoming dangerously high. A pressure pipe, L, likewise leads from the upper part of the water-drum C to the coil F, thus balancing the pressure on the float-valve D, and enabling it to rise and fall freely with every change of the water level.

The operation of this apparatus is very simple, and it can be adapted to the ordinary stoves and ranges used in every building at small cost. The fuel required to heat a room or to cook a meal will suffice also to generate steam enough to warm another room, and the regulation of the supply of water by the quantity of steam used secures the utmost economy in every respect. It requires no attention beyond that involved in keeping up an ordinary fire. It is manifest that this apparatus can be used for heating several rooms or an entire building without any other change than an increase in the quantity of fuel used, and the consequent more rapid generation of steam. The direct application of the heat to the pipes, by passing the pipes through the fire and generating the steam within the stove itself, renders this apparatus so compact that it can be placed in any room without obstructing the ordinary uses of the apartment, or occupying any space that the stove itself would not require or render unavailable for other purposes, as the drum and connections could be placed between the stove and the wall, directly under the stove pipe.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, substantially in the manner described, with an ordinary stove for warming buildings, of a coil of steam pipes provided with an automatic feed-valve which supplies water as fast as evaporated, thus maintaining the water at a uniform level, preventing the burning of the pipe, and dispensing with an external steam-drum.

2. The combination, substantially as described, of the water-drum and float-valve, with the heating coil and balancing pressure pipes, for the purpose of preventing pressure on the valve.

In testimony whereof we have hereunto subscribed our names.

EDW. B. CLARK,
JOSIAH S. CLARK,
WILLIAM S. CLARK.

Witnesses:

WM. B. DAYTON,
HENRY BALDWIN, Jr.