

(No Model.)

H. O. & A. L. SPRAGUE.
HEATING APPARATUS.

No. 417,596.

Patented Dec. 17, 1889.

FIG. 1.

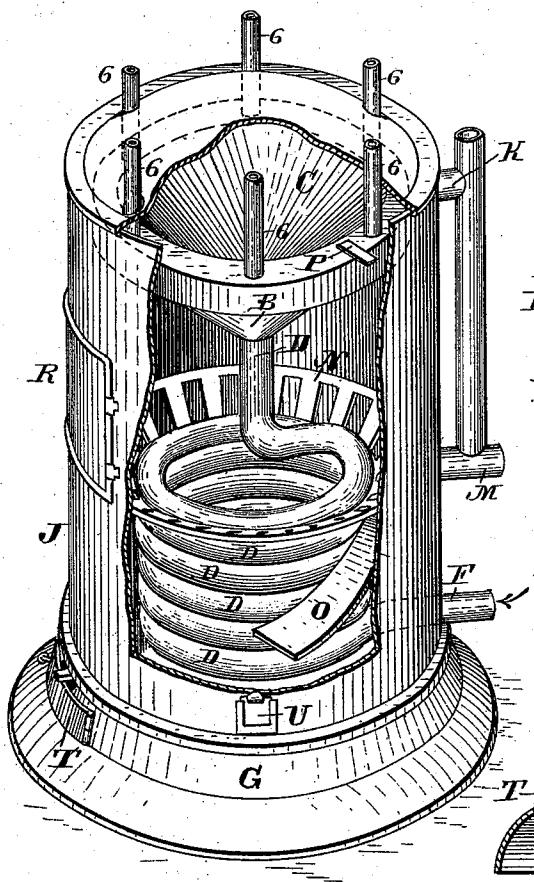
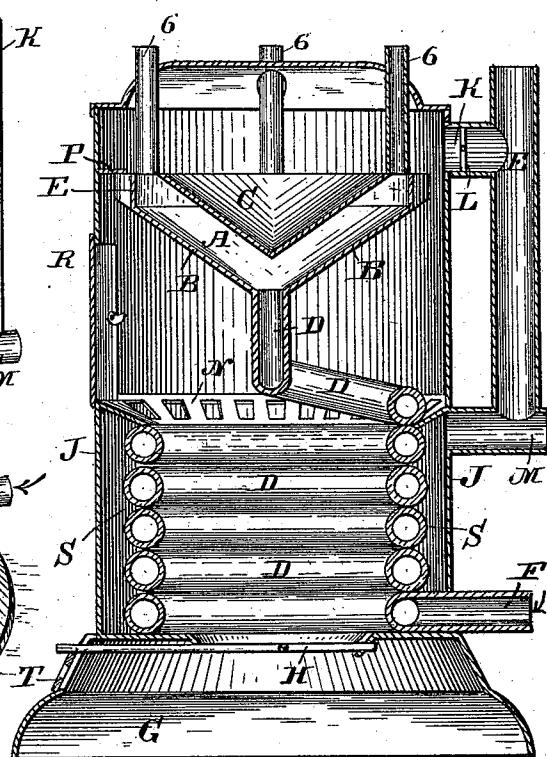


FIG. 2.



ATTEST.

J. Henry Kaiser.
A. L. Evans.

INVENTORS.

Henry O. Sprague.
Alvin L. Sprague.
By *J. W. Vale*
Attorney.

UNITED STATES PATENT OFFICE.

HENRY O. SPRAGUE AND ALVIN L. SPRAGUE, OF WESTFIELD, MASSACHUSETTS.

HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 417,596, dated December 17, 1889.

Application filed September 12, 1889. Serial No. 323,711. (No model.)

To all whom it may concern:

Be it known that we, HENRY O. SPRAGUE and ALVIN L. SPRAGUE, citizens of the United States of America, residing at Westfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Heating Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of our invention is to supply an equalizing distributor of hot water when used for heating purposes.

In the drawings, Figure 1 is a perspective view of our device with parts broken away. Fig. 2 is a vertical longitudinal section.

Like letters refer to like parts throughout the several views.

A is an air-tight reservoir, the bottom B of which is in the form of an inverted cone or dome, the apex terminating in the pipe D, forming an orifice through which hot water is received into the reservoir A. The top of the reservoir C is depressed in its center in the shape of an inverted cone, the apex of which terminates in or over the center of the receiving-pipe D. The top and bottom are connected by the side walls E, Fig. 2, the height of which determines the vertical dimension of the reservoir. Leading from the top are the pipes 6, approximately equidistant, through which hot water may be distributed as desired. The number of these pipes will be regulated by the location and number of points to which it is desirable to separately distribute hot water.

The pipe D is a coil constituting the fire-pot, the supply of cold water entering the coil at the point F, the water flowing in the direction of the arrow. The coil D sets within a metal heater or radiator resting solidly on the base G, forming a solid wall between the fire and return-flue. Within this base is the grate H, Fig. 2, of the ordinary pattern, and the ordinary receptacle for ashes and cinders. There is an annular space S, Fig. 2, between the coil and heater-walls J, extending up and between the reservoir A and said walls, giving direct draft through the flue K at the top of the radiator. When the direct draft

through the flue K is open, the fire is brought in contact with the inside of the coil D and above, around, and over the reservoir with a sufficient draft, thus heating water very quickly. On cutting off the direct draft by 55 means of the damper L the draft is then by way of the reversible flue M, and a more moderate heat results, though the fire is then brought in contact with both the inner and outer surfaces of the coil D.

The reversible-flue protector N and the deflector O, in addition to serving the purposes for which similar parts are in common use, together with the braces P, serve to attach the coil and reservoir to the sides of the casing and rigidly hold the parts in place. Fuel is supplied through the door R and ashes removed through the door T.

U is a vent for cleaning purposes.

Water entering the coil at F and passing 70 through the same into the reservoir by way of the coil D will be equally divided in volume by the apex of the depressed inverted-cone-shaped top C, and will flow with equal volume and pressure into the pipes 6, thus 75 securing the object to be attained.

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

1. In a hot-water heater, an air-tight reservoir A, consisting of a bottom B in the form of an inverted dome or cone, the apex terminating in a pipe or orifice through which hot water enters, having a top C, depressed to a suitable degree in its center in the shape of 85 an inverted cone, the apex terminating in or over the center of the receiving pipe or orifice, with side walls E, fixing the vertical dimension thereof, and distributing-pipes 6, leading therefrom, as a means of distributing the hot 90 water, as and for the purposes described.

2. In a hot-water heater, the air-tight reservoir A, constructed of the parts and in the manner herein described, in combination with the coil D, forming the fire-pot of the heater 95 or radiator, and the casing J, resting on the base G, as and for the purposes described.

3. In a hot-water heater, the reservoir A, constructed of the parts and in the manner herein set forth, in combination with the coil 100

D, forming the fire-pot of the heater, the casing J, the flue-protector N, the deflector O, and reversible flue M, as and for the purposes described.

5 4. In a hot-water heater, the air-tight reservoir A, constructed in the manner herein set forth and of the parts named, in combination with the coil D, forming the fire-pot of the heater, the casing J, the flue-protector N, the

deflector O, and braces P, as and for the purposes described.

In testimony whereof we affix our signatures in presence of two witnesses.

HENRY O. SPRAGUE.
ALVIN L. SPRAGUE.

Witnesses:

WILLIS S. KELLOGG,
ARCHEDELL N. SPRAGUE.