

(No Model.)

W. L. SHEPARD.
HOT WATER HEATER.

No. 527,890.

Patented Oct. 23, 1894.

Fig 1

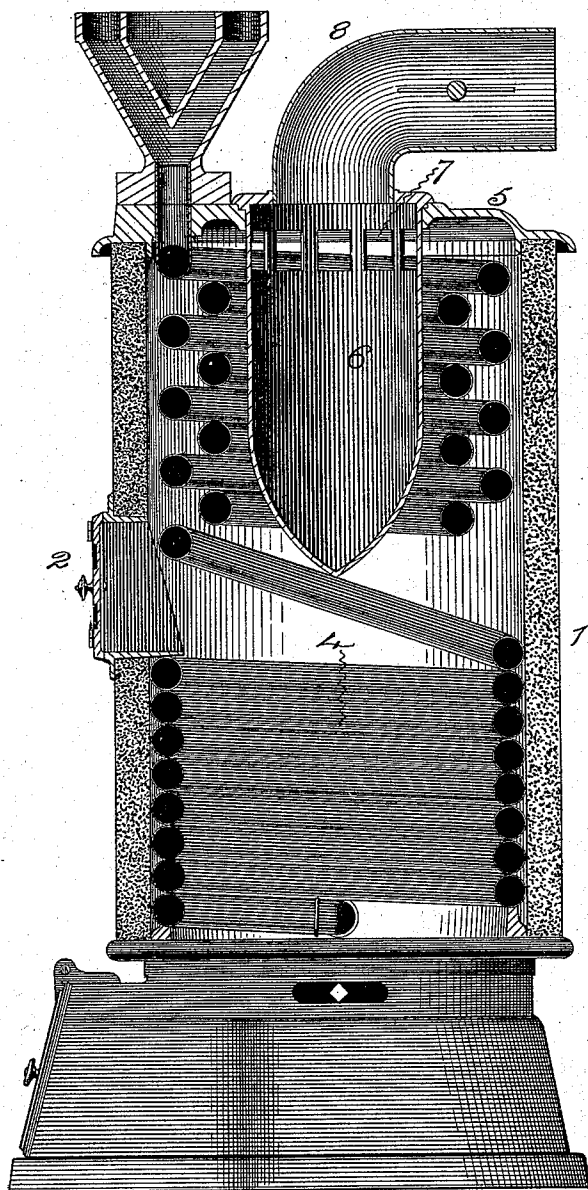


Fig 2

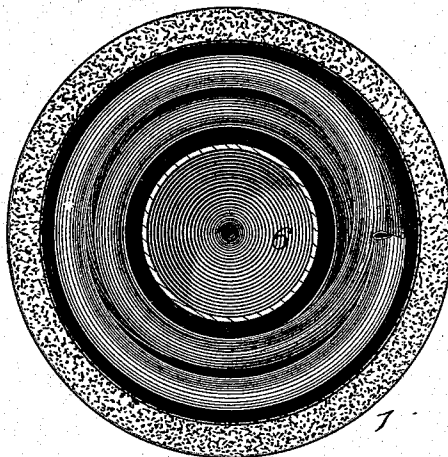
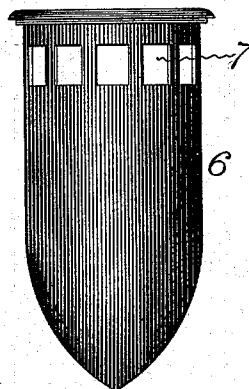


Fig 3



Witnesses:

C. E. Buckland,

E. J. Hyde.

Inventor:

Wilbur L. Shepard,
by
Harry R. Williams,
att'y.

UNITED STATES PATENT OFFICE.

WILBUR L. SHEPARD, OF ELMWOOD, CONNECTICUT, ASSIGNOR TO THE
WHITLOCK COIL PIPE COMPANY, OF SAME PLACE.

HOT-WATER HEATER.

SPECIFICATION forming part of Letters Patent No. 527,890, dated October 23, 1894.

Application filed December 21, 1893. Serial No. 494,257. (No model.)

To all whom it may concern:

Be it known that I, WILBUR L. SHEPARD, a citizen of the United States, residing at Elmwood, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Hot-Water Heaters, of which the following is a specification.

The invention relates to the class of tubular hot water heaters, and the object is to provide a simple, cheap, compact and durable apparatus for heating the water of a system for warming houses, stores, hotels and other buildings, which is so constructed that the heat conveying medium will absorb the largest possible amount of the heat of the fire, and have a rapid circulation with a small supply of fuel, thus producing an efficient and economical heater.

Referring to the accompanying drawings, Figure 1 is a central vertical section of the heater. Fig. 2 is a horizontal section of the same through the coil above the fire pot, and Fig. 3 is a detail side elevation of the deflector that is located above the fire pot.

In the views, 1 indicates the exterior shell of the heater, which is usually composed of double walls of iron with an air space or a quantity of heat non-conducting material, as asbestos, between the walls. This shell, which has an ordinary fuel door, 2, above the fire pot, is supported upon a suitable base, 3, in which is formed a convenient ash pit. The fire pot 4 is preferably formed in the shell by coiling the pipe for the circulating water around the shell above the grate, which pipe is also coiled above the fire pot and extends through the cap or cover, 5, that is placed upon the shell, and terminates in an outlet chest or branch from which lead the pipes to the radiators of the system. This upper part of the coil of pipe above the fire pot is formed on circles of different diameters, that is, it has large and small loops that alternate with each other, to cause the rising flames and heat of the fire to pass zig-zag round and between the coils to thoroughly heat them.

In an opening in the center of the cap that covers the shell is placed a deflector, 6, which is preferably cast to shape of iron with a flanged end that rests upon the edge of the

opening through the cap. This deflector is usually made hollow, with ports or openings, 7, through its side walls, and from it leads the smoke pipe, 8, to the chimney flue. The heat and flames arising from the fire, when this simple deflector is in position, are thrown out sidewise and made to pass between and thoroughly encompass the coils before reaching the openings in the top of the deflector and passing out through the smoke pipe. By means of this arrangement the heat which is thrown off by the deflector, and the products of combustion of the fuel which are obliged to pass between the coils before reaching the smoke pipe, thoroughly heat the pipe containing the heat-conveying liquid of the system so that it will necessarily absorb a large amount of heat. At the same time this causes the fire to have a better draft near the outside edges so that the fire is not the hottest at the center from which most of the heat could rise and pass out of the chimney without heating the coils. This arrangement is simple and cheap in construction, the deflector can be readily placed in position or removed therefrom to enable the coils to be inspected without taking off the cap of the shell, and it renders the heater very efficient, as it causes all of the heat and the products of combustion to pass around the water conveying coils before passing to the smoke pipe, so that with a comparatively short coil in the interior a large quantity of heat will be absorbed by the water, insuring a rapid circulation through the system.

I claim as my invention—

In a hot water heater, in combination with the coils for the circulating medium, a hollow deflector having an open upper end, loosely resting in an opening in the cover and projecting into the center of the coils above the fire pot, said deflector having openings through its side walls from the combustion chamber near the cover, and a smoke pipe supported in the open upper end of the deflector, substantially as specified.

WILBUR L. SHEPARD.

Witnesses:

H. R. WILLIAMS,
C. E. BUCKLAND.