

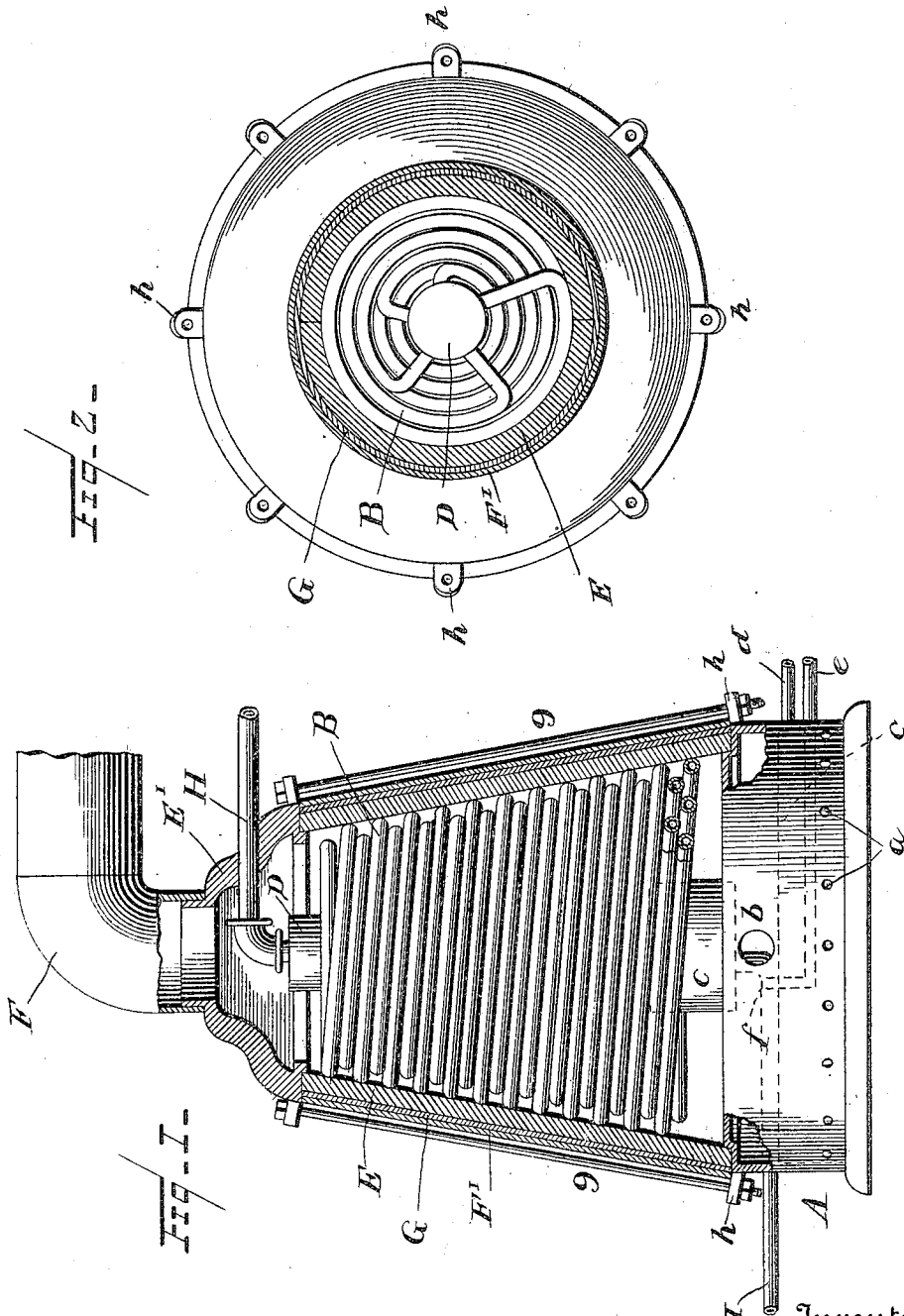
No. 812,890.

PATENTED FEB. 20, 1906.

W. J. SHEETZ.

BOILER.

APPLICATION FILED JULY 6, 1904.



Witnesses

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BOILER.

No. 812,890.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed July 6, 1904. Serial No. 215,523.

To all whom it may concern:

Be it known that I, WILLIAM J. SHEETZ, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Boilers for Hot-Water Heating Systems; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates generally to boilers, and particularly to boilers for hot-water heating systems, although it is also adapted for use in steam heating plants; and it has for its object to provide a simple, economical, and durable boiler adapted to present a very large heating-surface in a relatively small space; and it consists in the parts and combinations of parts hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a vertical section through the casing of the boiler, showing the water-tubes in side elevation; and Fig. 2 a plan view of the same with the dome removed.

Similar letters refer to similar parts in both views.

Referring to the drawings, A represents the foundation or base of the boiler, which consists of a casting, preferably circular in shape, having a series of perforations *a* there-through for the admission of air to support combustion, and also having a peep-hole *b*, whereby the conditions within the base may be observed. Within the casting A the burner *c* (indicated by dotted lines, Fig. 1) is arranged and is supplied with gas by a pipe *d*, which leads to a source of supply. (Not shown.) A pipe *e*, also connected to the source of supply, feeds a pilot-burner *f*. (Shown by dotted lines, Fig. 1.) While the use of gas as a fuel is desirable and where the same can be readily obtained is preferred, still oil or other fuel may be used as the heating medium if preferred or found more convenient, and I make no claim herein on the burner.

Suitably supported in any desired manner from the base A is a boiler B, which consists of a series of spirally-arranged coils, prefer-

ably five or more, of cold-drawn seamless tubing. The tubes are arranged spirally, and the coils gradually decrease in diameter toward the top, so as to form truncated cones, and, as shown, are arranged one over the other in nested form and are staggered, so that the second coil of the series breaks joint with the first or outside coil, the third coil breaking joint with the second coil, the fourth with the third, and the fifth coil with the fourth coil; but none of the coils are in contact, so that the products of combustion passing up from the burner pursue a tortuous course around and between the convolutions of the different coils to reach the stack.

At their lower ends each coil enters a drum or manifold C and terminates or opens in a similar drum or manifold D at the top, the drum D being of a size sufficient to fully close the space at the top of the innermost coil.

Surrounding the coils is a fire-brick jacket E, preferably made in two parts and of truncated form, on which rests a metal dome E', to which is connected the smoke-stack F. Surrounding the brick jacket E is a non-conducting covering G, which is inclosed by a sheet-metal jacket F', and the parts are held in position and together by the rods *g*, which connect the perforated ears *h* on the dome and the base of the boiler and are secured by the nuts run on the lower ends of said rods.

A pipe H leads from the top manifold to convey the heated water or steam to its place of use. A pipe I is connected with the lower manifold for the purpose of supplying water thereto.

In operation the heated gases from the burner pass upwardly and coming in contact with the lower manifold and the coils of tubing heat the water contained therein and escape to the smoke-stack.

It will be observed that the arrangement of the tubes provides a large area of heating-surface and that the heat is applied to the water contained therein from all sides, thus insuring its being rapidly and economically heated.

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

A boiler comprising a series of spirally-

coiled tubes forming truncated cones, said
coiled tubes being arranged one within the
folds or convolutions of the other so that they
break joint with each other, a manifold or
5 drum arranged within and filling the space of
the top coil of the inner coiled tube, a mani-
fold or drum within the lower or bottom coil,
each of said series of tubes being connected

to said manifolds, and an escape-pipe enter-
ing the top manifold or drum. 10

In testimony whereof I affix my signature
in presence of two witnesses.

WILLIAM J. SHEETZ.

Witnesses:

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