

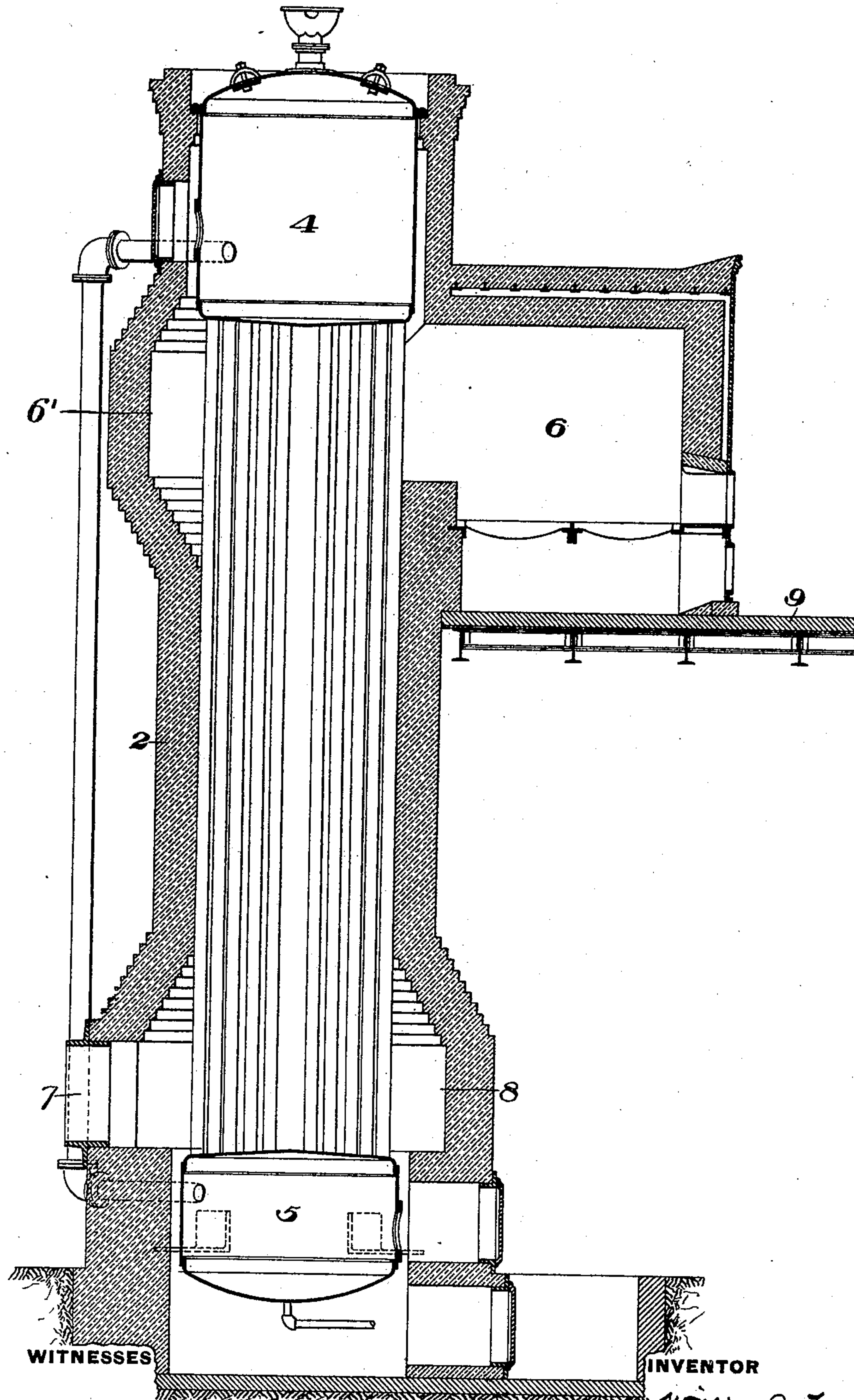
No. 615,644.

Patented Dec. 6, 1898.

W. C. TEMPLE.
STEAM BOILER.

(Application filed Nov. 18, 1897.)

(No Model.)



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UNITED STATES PATENT OFFICE.

WILLIAM C. TEMPLE, OF PITTSBURG, PENNSYLVANIA.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 615,644, dated December 6, 1898.

Application filed November 18, 1897. Serial No. 658,898. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. TEMPLE, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Steam-Boilers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, which shows in vertical central section a steam-boiler constructed in accordance with my invention.

In the drawing, 2 represents the inclosing brick or masonry shell of the boiler containing an upright or nearly upright bank of tubes arranged in a circle, connecting an upper steam-and-water drum 4 with a mud-drum 5. The combustion-chamber 6 of the boiler, contrary to the usual construction, discharges into the upper part of the bank of tubes, the shell being formed around the tubes with an enlargement or surrounding chamber 6', constituting an extension of the combustion-chamber and serving to permit the complete encircling of the tubes by the gases.

The outlet 7 for the products of combustion after they have passed along the bank of tubes is at the lower part of the boiler, preferably just above the mud-drum, and may lead directly into a stack or into a flue containing a second or supplemental bank of tubes, as desired.

8 is an enlargement of the shell constituting a chamber surrounding the tubes at the position of the outlet-flue.

In the operation of the boiler the flame and products of combustion from the combustion-chamber descend along and among the tubes to the outlet-flue, heating the tubes in their passage. Such down passage of the gases in their first contact with the heating-surfaces, in combination with the chamber 6', affords many important practical advantages. The course of the hot gases being downward, the dust and cinders which they carry with

them from the combustion-chamber are drawn directly downward and are thus carried the more easily out from among the tubes through the outlet-flue instead of, as heretofore, being carried upward from the combustion-chamber, which upward direction, being opposed to the action of gravity, tends to deposit the dust, &c., upon the surfaces of the boiler and boiler-setting. Furthermore, by having the combustion-chamber at the upper part of the structure the main portion of the boiler extends below instead of above the firing-floor 9, and this enables me to adapt so-called "vertical" boilers to use in rooms and buildings in which they could not otherwise be used conveniently. I thus secure a cleaner and more serviceably-located boiler and obtain also important advantages in respect of efficiency and economy.

Those skilled in the art will be able to modify the construction in various ways within the scope of my claim by changing the shape of the drums, the cylindrical axes of which may be vertical or horizontal, by modifying the arrangement of the tubes and setting or by adding other banks of tubes.

I claim—

A boiler having a substantially upright bank of water-tubes, a drum into which the upper ends of the tubes enter, an elevated combustion-chamber at the side of the bank of tubes, a gas-circulation chamber constituted by an enlargement of the interior of the shell around the tubes at the place of entrance of the gases from the combustion-chamber, and an outlet for the gases at the lower part of the boiler; substantially as described.

In testimony whereof I have hereunto set my hand.

W. C. TEMPLE.

Witnesses:

G. I. HOLDSHIP,
H. M. CORWIN.