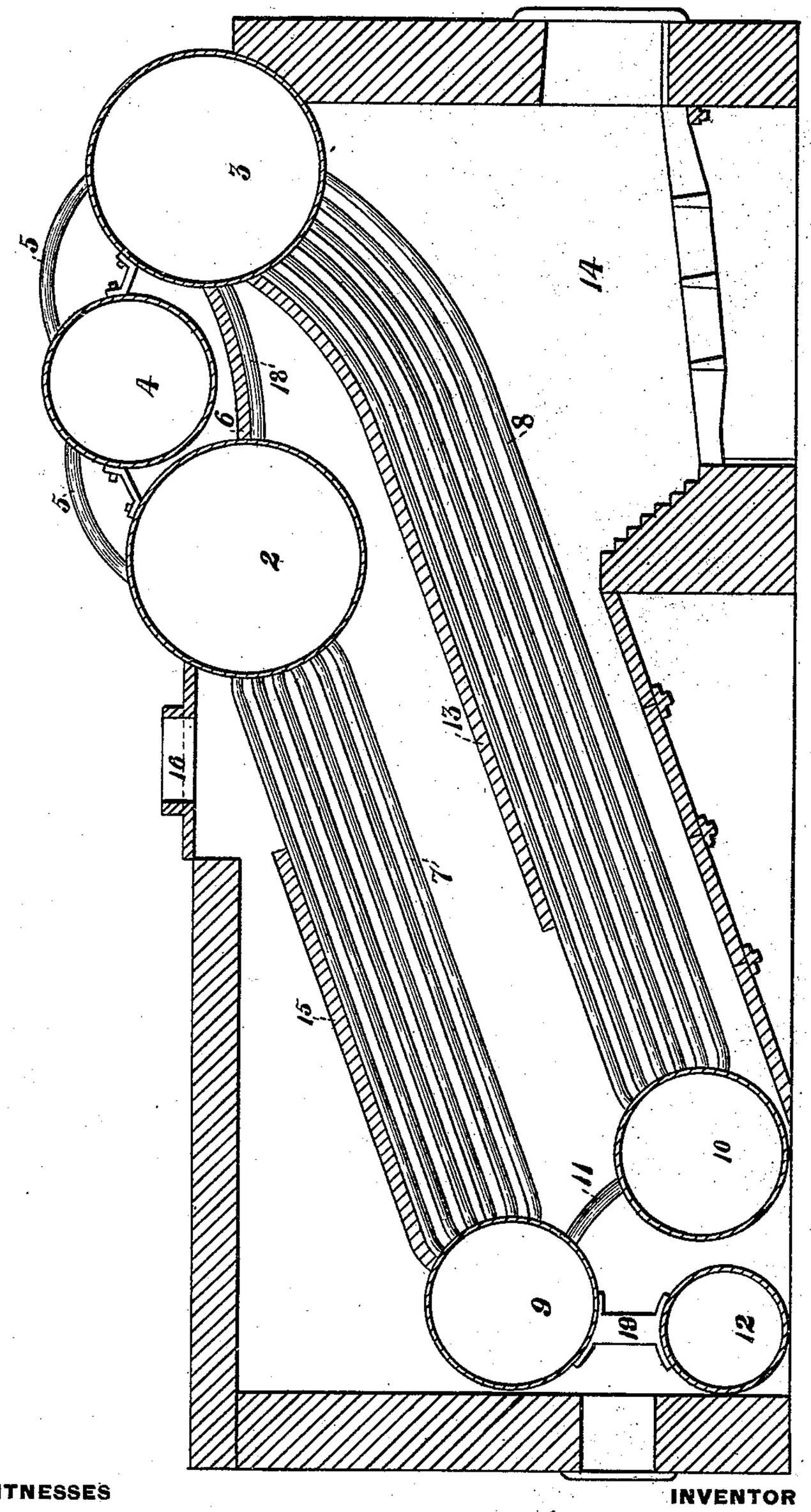
(No Model.)

J. PIERPOINT.

WATER TUBE BOILER.

No. 490,923. Patented Jan. 31, 1893.



WITNESSES

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JAMES PIERPOINT, OF PITTSBURG, PENNSYLVANIA.

WATER-TUBE BOILER.

SPECIFICATION forming part of Letters Patent No. 490,923, dated January 31, 1893.

Application filed March 21, 1892. Serial No. 425,714. (No model.)

To all whom it may concern:

Be it known that I, JAMES PIERPOINT, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Water-Tube 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 illustrates a longitudinal sectional view of a water-tube boiler constructed in accordance with my invention.

In the setting of boilers it is often found necessary to place the same in positions where the vertical space is very limited, such as the cellars of buildings, and my invention is designed to produce a boiler which is so constructed that its vertical height is small, so that it is easily set in such locations.

In the drawing, in which similar numerals indicate corresponding parts, 2 and 3 indicate steam and water-drums located in substantially the same horizontal line, and 4 a steam-drum held between the same and connected therewith by pipes 5, while the drums themselves are connected by pipes 18. A tile partition wall 6 extends between the drums 2 and 3 below the steam-drum and above pipes 18, and two sets of tubes 7 and 8 connect said drums with mud-drums 9 and 10. There are preferably six tubes in each of these sets, and the tubes are curved at their ends as shown to enter the drums in a substantially radial line.

The mud-drums 9 and 10 are connected by a pipe 11, and a smaller mud drum 12 is set directly beneath the drum 9, a larger pipe 19 connecting them. A shield or partition-wall 13, composed of tiles, is placed immediately above the lower set of tubes, this wall extending from the drum 3 to a point adjacent to the mud-drum 10, so that the products of combustion rising from the fire-place 14 impinge against the drum 3 and tubes 8 and follow the tubes downwardly to the end of the tile wall, when they rise and come in contact with the set of tubes 7. A similar wall 15 is provided above this set extending from the mud-drum 9 to a point near the steam and water-drum 2, so that the heat currents are kept in contact with the tubes and rise along the same till they reach the exit flue 16. A door may be provided in the rear wall of the setting, by opening which and removing the tiles composing the wall 15 the tubes may be reached and examined or repaired. The other set of tubes may be reached through the fire-place. I may, moreover, pierce the tile-wall between the two drums 2 and 3 and provide a covering wall over the drum 5 and connecting tubes, to allow access of the products of combustion to the steam drum in order to superheat the steam therein.

The operation is as follows:—The water entering the drum 2 passes down through the tubes 7 to the mud-drum 9, thence to the mud-drum 10 and tubes 8 to the drum 3, whence it returns by the pipes 18 to the drum 2, thus keeping up a constant circulation. The steam passes into the drum 4, whence it is drawn for use and the sediment settles in the mud-drums, the residue in the drum 9 descending into the drum 12, whence it is removed from time to time.

The advantages of my construction are obvious. A boiler of very small height is afforded, while the sediment is collected in the mud-drum before the water passes to the more highly heated tubes 8 and drum 3.

The boiler is found to give a very high efficiency, as there is an equable distribution of the products of combustion, and the same are kept in contact with the tubes and drums during their passage to the stack.

What I claim is:—

1. A water-tube boiler, consisting of two steam and water drums having connecting tubes, a steam-drum connecting with these drums, two mud-drums located in the rear thereof, tubes connecting the drums with the steam and water drums, pipes connecting these mud-drums, and an additional mud-drum located beneath and connecting with one of said mud-drums; substantially as and for the purposes described.

2. A water-tube boiler, consisting of two steam and water-drums having connecting-

tubes, a steam-drum connecting with these drums, two mud-drums located in the rear thereof, tubes connecting the drums with the steam and water-drums, pipes connecting these mud-drums, partition-walls over the pipes connectiug the mud-drums to the steam and water-drums, and an additional mud-drum located beneath and connecting with one of the first mentioned mud-drums; substantially as described.

In testimony whereof I have hereunto set my hand this 19th day of March, A. D. 1892.

JAMES PIERPOINT.

Witnesses:
H. M. CORWIN,
C. BYRNES.