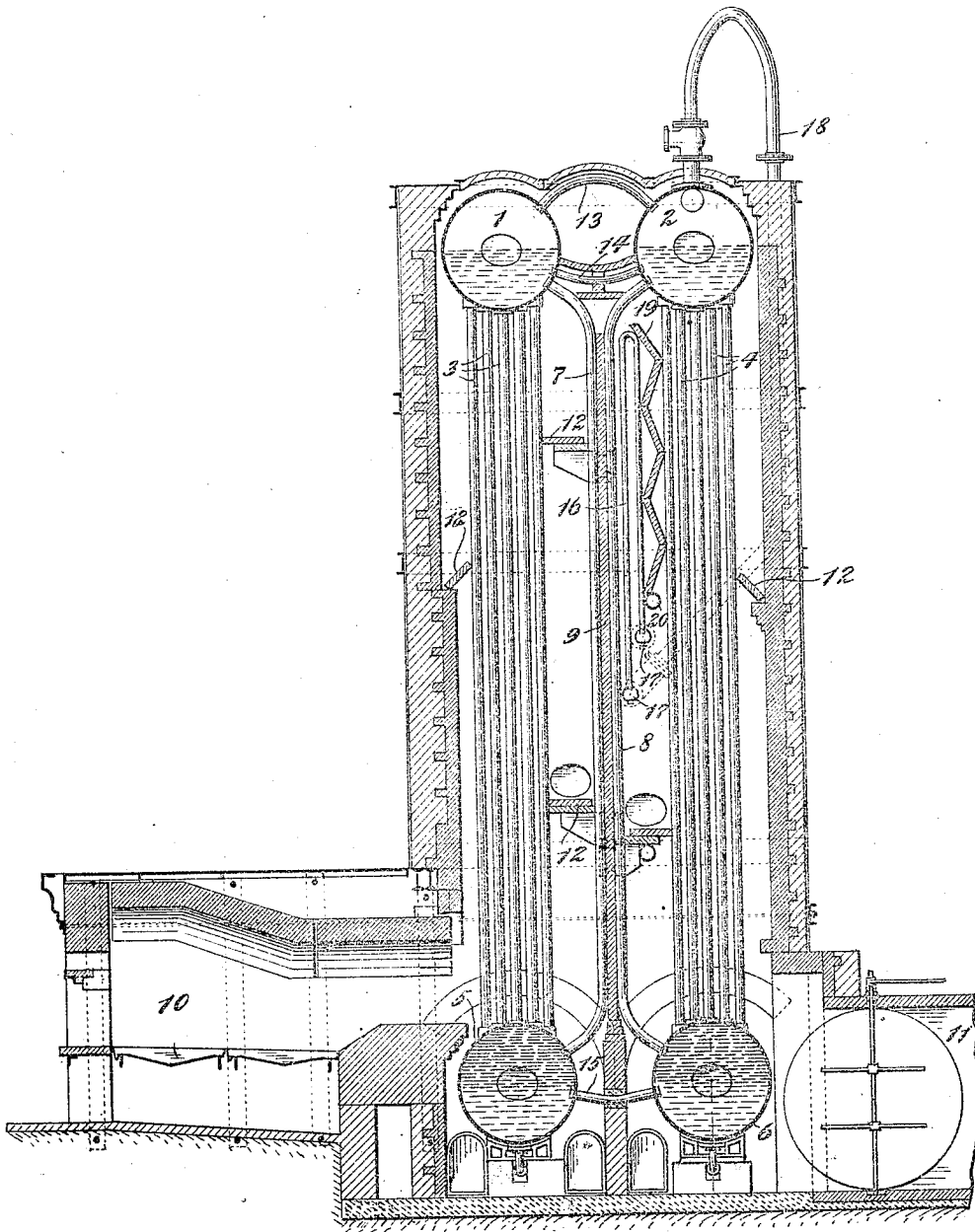


J. E. BELL.
STEAM BOILER.
APPLICATION FILED JAN. 6, 1913.

1,096,090.

Patented May 12, 1914.



WITNESSES:

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JOHN E. BELL, OF NEW YORK, N. Y., ASSIGNOR TO THE BABCOCK & WILCOX COMPANY,
OF BAYONNE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

STEAM-BOILER.

1,096,000.

Specification of Letters Patent.

Patented May 12, 1914.

Application filed January 6, 1913. Serial No. 740,303.

To all whom it may concern:

Be it known that I, JOHN E. BELL, a citizen of the United States, residing at New York city, borough of Manhattan, in the county of New York and State of New York, have invented certain new and useful Improvements in Steam-Boilers, of which the following is a specification.

The present invention is applicable to boilers of the type shown in which there are two or more banks of vertical tubes connecting upper steam and water drums with lower water drums, and in which a superheater is located in the downtake pass.

The object of the invention is to cause a definite portion of the gases to flow over and among the superheater tubes, and will be understood by reference to the accompanying drawing showing a vertical longitudinal section through the boiler.

Referring to the drawing the numerals 1 and 2 designate upper transverse steam and water drums connected by banks of straight tubes 3 and 4 with transverse water drums 5 and 6 respectively. In addition to the straight tubes of each bank the bank 3 comprises a row of tubes 7, and the bank 4 a row of tubes 8, said tubes 7 and 8 being curved or bent at their ends to enter the drums radially. Supported between the tubes 7 and 8 is a partition wall or vertical baffle 9. The gases from the furnace 10 are directed through the uptake pass in which the tubes 3 and 7 are located, through the passage above the baffle 9 and then through the downtake pass, in which the tubes 4 and 8 are located, to the stack outlet 11. Baffle shelves 12 direct the gas along and across the water tubes. The drums 1 and 2 may be connected by the usual steam and water circulators 13 and 14, and the drums 5 and 6 by the pipe 15.

In the downtake pass is a superheater 16 consisting of U-shaped tubes expanded into cross boxes 17. These boxes preferably extend through the side walls and the lower box is connected by pipe 18 with the steam space of the rear drum 2. As shown in the drawing, the superheater tubes extend substantially to the upper end of the baffle 9, and, to cause a definite portion of the gases

to flow over and among the superheater tubes, I provide a special baffle 19 of zigzag form, the tiles forming said baffle resting for side support alternately against the superheater tubes and the boiler tubes. This baffle extends from substantially the upper end of the superheater to near the steam outlet cross box and is supported by a lateral member 20, said member being supported by the boiler setting. The special form of baffle, however, is not material, its position and function being the principal feature of the invention.

The baffle 19 causes a portion of the gas to be diverted from its natural course and caused to flow directly over and among the superheater tubes. The invention is one which has been practically used and its employment has resulted in a higher degree of superheat with a given superheater than where it is not used.

What I claim and desire to secure by Letters Patent of the United States is:—

1. A superheater boiler having two banks of tubes, a baffle between the banks whereby the gases are directed upwardly through the first bank and downwardly through the second bank, a superheater in the downtake pass, and a baffle between said superheater and the tubes of the second bank to divide the flow of the gases into two portions one of which passes over the boiler tubes and the other over and among the superheater tubes.

2. A superheater boiler, having two banks of tubes, a baffle between the banks whereby the gases are directed upwardly through the first bank and downwardly through the second bank, a superheater in the downtake pass comprising vertically disposed U-shaped tubes extending approximately to the upper end of said baffle, and a baffle between one leg of the superheater and the tubes of the second bank to divide the flow of the gases into two portions one of which passes over the boiler tubes and the other over and among the superheater tubes.

3. A superheater boiler having two banks of tubes, a baffle between the banks whereby the gases are directed upwardly through the first bank and downwardly through the second bank, a vertical loop superheater in the

downtake pass adjacent the said baffle, and a baffle having a zigzag form and resting for side support alternately against the superheater tubes and the generating tubes of the rear bank whereby a portion of the gas will be diverted and caused to flow directly over and among the superheater tubes.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN E. BELL.

Witnesses:

E. P. TERRY,
E. CAMP.