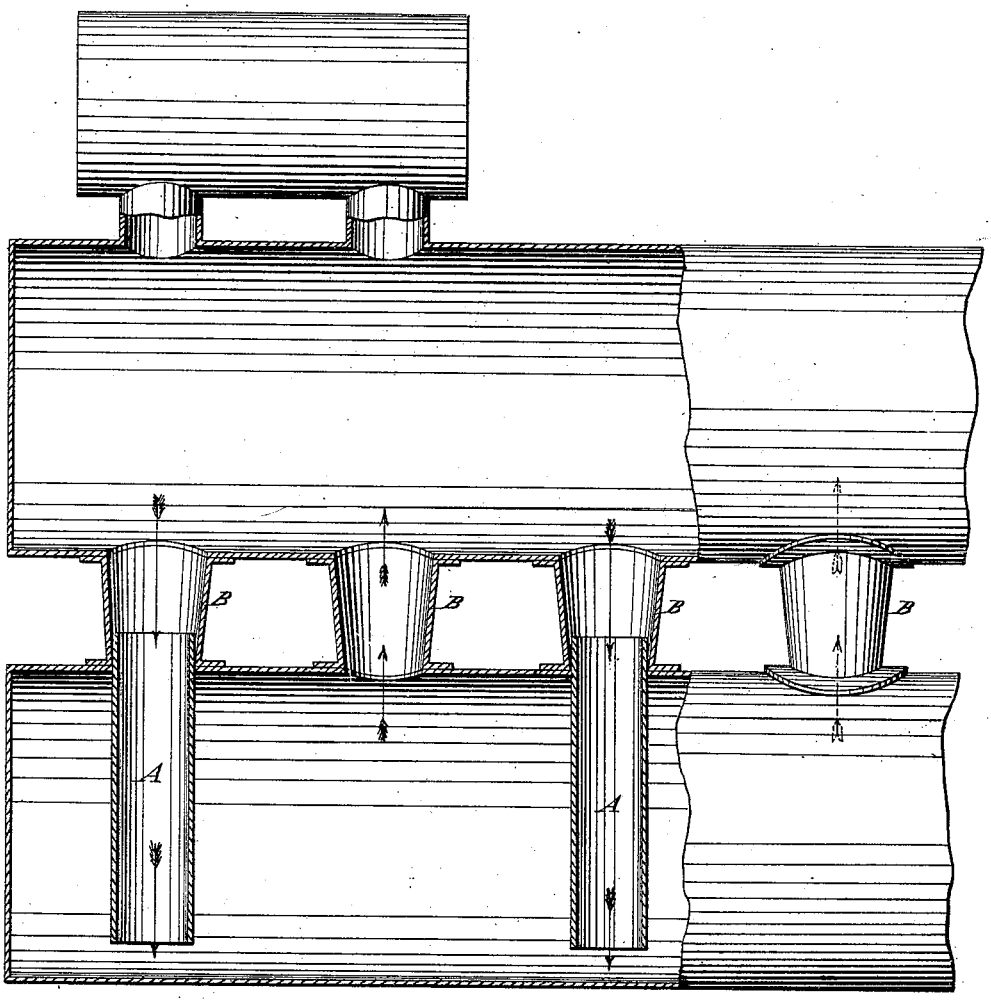
H. S. COLEMAN.

STEAM-BOILERS.

No. 193,848. Patented Aug. 7, 1877.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY S. COLEMAN, OF CHELMSFORD, ENGLAND.

IMPROVEMENT IN STEAM-BOILERS.

Specification forming part of Letters Patent No. **193,848**, dated August 7, 1877; application filed July 21, 1877.

To all whom it may concern:

Be it known that I, HENRY S. COLEMAN, of Chelmsford, in the county of Essex, England, have invented a new and useful Improvement in Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to what are known as double boilers, as described in my Letters Patent for the United States, dated May 15, 1877, No. 190,743, its object being to lessen the consumption of fuel by maintaining such a circulation of water as will effectually prevent the formation of deposit on the bottom of the lower barrel of the boiler, and reduce the incrustation generally.

As described in my said Letters Patent, the boilers to which my invention relates have two barrels or shells, placed one over the other, with short vertical connecting-tubes at intervals; and my invention consists in improved means for producing and maintaining a vigorous circulation of the water from the bottom of the upper shell to the bottom of the lower shell—that is to say, to the surface of the plates exposed to the action of the fire, and from the upper part of the lower shell back to the upper shell. This I effect by means of circulation-tubes, applied, as hereinafter described, to the connecting-tubes above mentioned, and extending downward to within a few inches of the bottom of the lower shell.

In my present invention, instead of having in each connecting-tube a circulation-tube of smaller section than the connecting-tubes, as before, there is a circulation-tube in every alternate connecting-tube only. In this case the circulation-tubes fit in and form a continuation of the connecting-tubes, and the water passes down the circulation-tubes and rises through the intermediate connecting-tubes. These tubes are so supported as to be readily moved out of the way when cleaning the boiler.

The accompanying drawing is a part sectional and part elevation of a double boiler, with the circulation-tubes A in each alternate connecting-tube B. It will be seen that the circulation-tubes A fit tightly in the lower ends of the connecting-tubes, so as to form a downward continuation thereof, extending to within a few inches of the bottom of the lower shell. In this case the water can only pass down through those of the tubes B, which are provided with circulation-tubes A, and up through the short intermediate tubes B, as indicated by the arrows, the circulation being from the bottom of the upper shell to the bottom of the lower shell, and back to the upper shell.

Having thus described my invention, what I claim as new is—

The combination, with a double boiler, whose two parts are connected by short tubes B, of circulation-tubes A, forming downward continuations of each alternate connecting-tube, said circulation-tubes extending to within a few inches of the bottom of the lower shell, for the purpose of determining a circulation of the water, as shown and described.

The above specification of my invention signed by me this 25th day of June, 1877.

HENRY SEPTIMUS COLEMAN.

Witnesses:

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