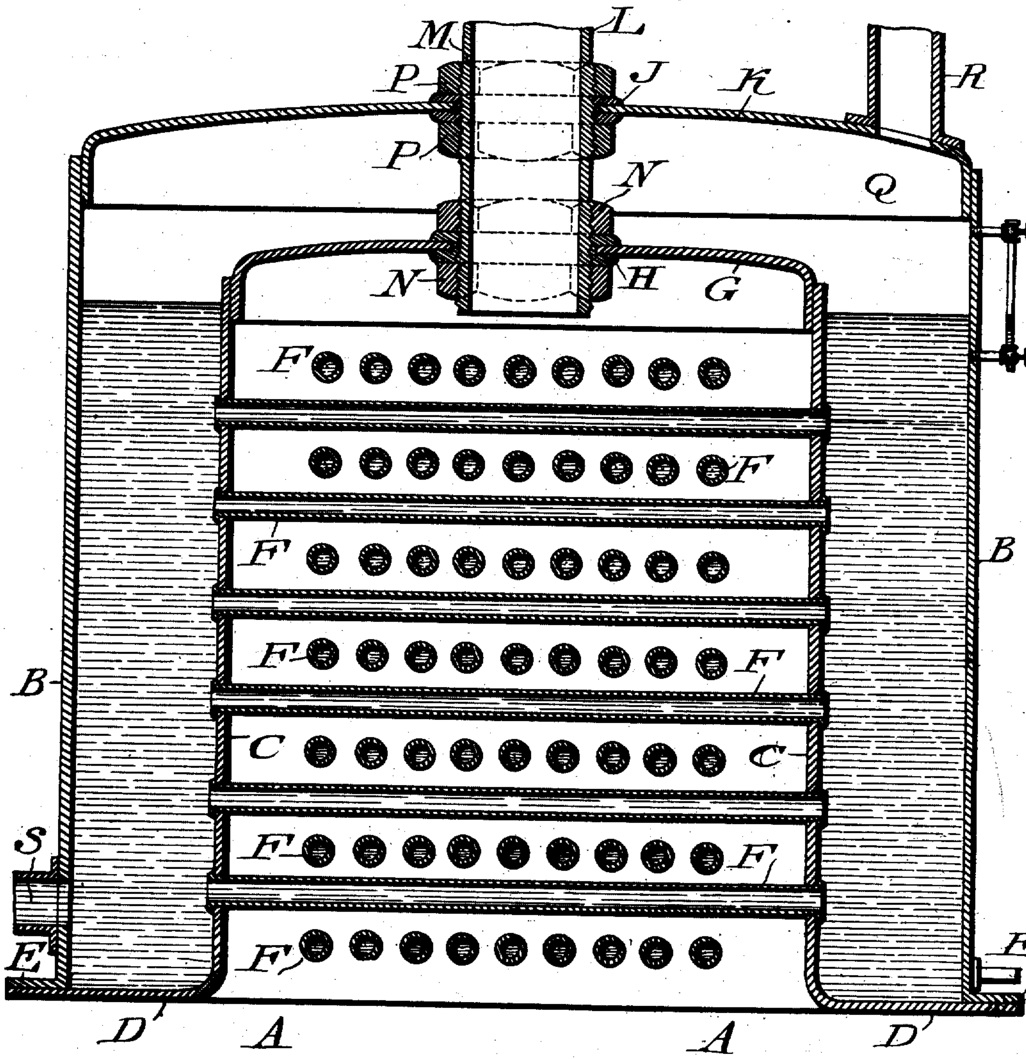
No. 689,211. Patented Dec. 17, 1901.

J. Q. A. MOORE.

WATER TUBE BOILER.

(Application filed May 22, 1901.)

(No Model.)



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JOHN Q. A. MOORE, OF PHILADELPHIA, PENNSYLVANIA.

WATER-TUBE BOILER.

SPECIFICATION forming part of Letters Patent No. 689,211, dated December 17, 1901.

Application filed May 22, 1901. Serial No. 61,384. (No model.)

To all whom it may concern:

Be it known that I, JOHN Q. A. MOORE, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Water-Tube Boilers, of which the following is a specification.

My invention consists of an improved construction of water-tube boiler wherein a maximum heating and evaporating surface is provided, provision being also made for utilizing the outlet-flue to stay the crown-sheet and the top of the boiler, whereby a cheap, efficient, and durable structure is obtained.

It further consists of novel details of construction, all as will be hereinafter fully set forth, and particularly pointed out in the claims.

The figure represents a vertical sectional view of a water-tube steam-boiler embodying my invention.

Referring to the drawing, A designates a steam-boiler, consisting of the outer shell B and the inner shell C, which latter is preferably constructed with the outwardly-turned base portion D, to which is flanged the foot E of the said outer shell B, which latter is preferably cylindrical, although it will of course be evident that the shape of the same may be changed if desired, the space between said shells forming a water leg or jacket.

F designates water-tubes which extend transversely of each other and have their ends suitably secured in the inner shell C in any suitable manner.

G designates a crown-sheet of the boiler, in which latter the bushing H is secured, which latter is in substantial alinement with the upper bushing J, which is secured in an opening in the top K of the boiler.

L designates an outlet-flue for the products of combustion, the latter being threaded at M and adapted to pass through the bushings H and J, against which latter the jam-nuts N and P, respectively, contact.

Steam may be taken from the steam-space Q by any suitable pipe, as R, and it will be apparent that the boiler can also be provided with the usual blow-off water and steam gages, grate, ash-pit, and other appurtenances, as is customary, it being also evident that the feed-water may be supplied to the boiler by means of a pipe S, which may conduct the feed-water to the space between the shells B and C at any suitable point.

It will be apparent from the foregoing that the outlet flue or top L serves the dual function of affording the conduit for the escape of the hot gases and products of combustion and that it further acts as a stay and braces in a simple and effective manner the crown-sheet G and the top K of the boiler, it being further apparent that by locating the outlet-flue L in the position indicated the same also serves to superheat the steam formed in the steam-chamber Q.

It will be apparent that slight changes may be made by those skilled in the art which will come within the scope of my invention, and I do not therefore desire to be limited in every instance to the exact construction herein shown and described.

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

1. A water-tube boiler consisting of inner and outer shells, whereby a water-jacket is formed, water-tubes located in opposite portions of said water-jacket, a flue extending through the crown-sheet and top of the boiler and means supported by said top and crown-sheet for holding said flue in position, said means consisting of a bushing in said top, through which said flue passes, jam-nuts engaging said flue above and below said bushing and in contact with the latter, a second bushing carried by said crown-sheet, and a second set of jam-nuts engaging the lower portion of said flue, and in contact with the top and bottom of said last-mentioned bushing.

2. A water-tube boiler having a separate bushing secured in its crown-sheet and top respectively, a flue extending through said bushings and provided with an externally-threaded portion and jam-nuts engaging said flue and adapted to bear upon each of said bushings, whereby said flue serves as an outlet for the products of combustion and as a stay for the upper portion of the boiler.

3. A water-tube boiler, consisting of inner and outer shells having a water-space between them, the inner shell having an outward-turned base portion to which is secured the

foot of the outer shell, water-tubes extending transversely of said inner shell, openings in the crown-sheet and top of the boiler, a separate bushing in each of said openings, an outlet-flue passing through said bushings, and jam-nuts engaging said outlet-flue, and adapted to be screwed against said bushings.

4. A water-tube boiler consisting of inner and outer shells having a water-space between them, water-tubes forming a communication between said space, alining openings in the top and crown-sheet of said boiler, separate internally-threaded bushings secured in said top and crown-sheet respectively, a flue in threaded engagement with said bushings, a pair of jam-nuts located above and below the upper bushing and engaging said flue, and a second pair of jam-nuts located above and below the lower of said bushings and engaging said flue.

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Witnesses:
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