

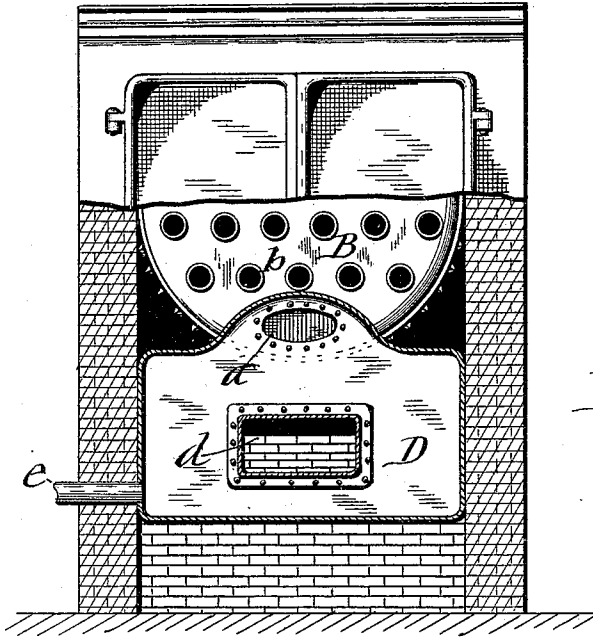
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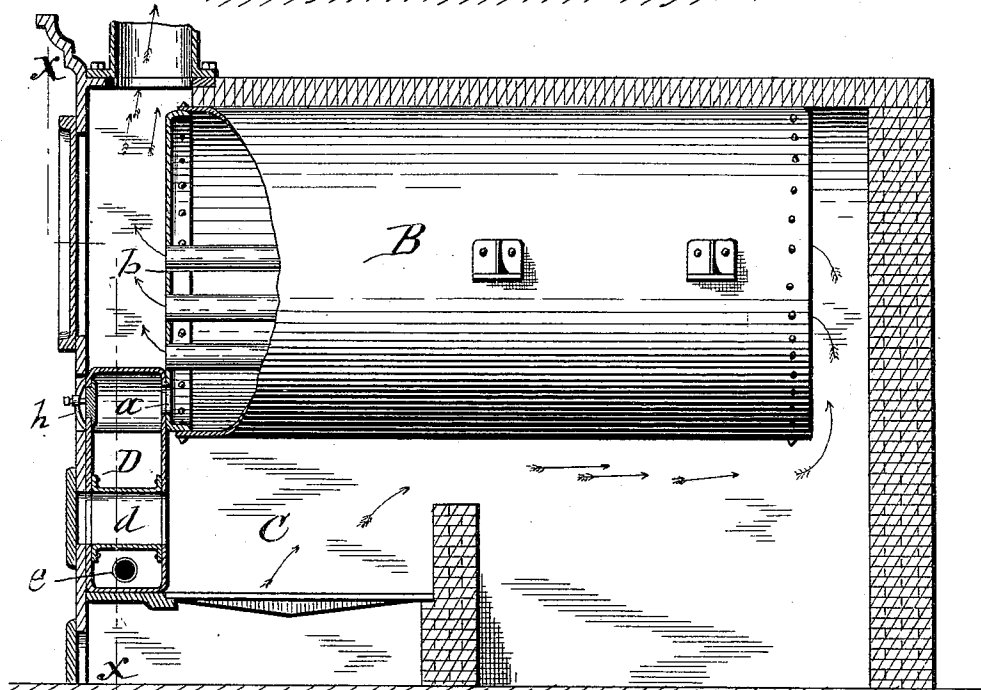
J. J. TONKIN.  
STEAM BOILER.

No. 526,062.

Patented Sept. 18, 1894.



*Fig. 3*



*Fig. 1*

WITNESSES:

*W. C. Robinson*  
*J. J. Laas*

INVENTOR:

*John J. Tonkin*  
*By E. Laas*  
his ATTORNEY

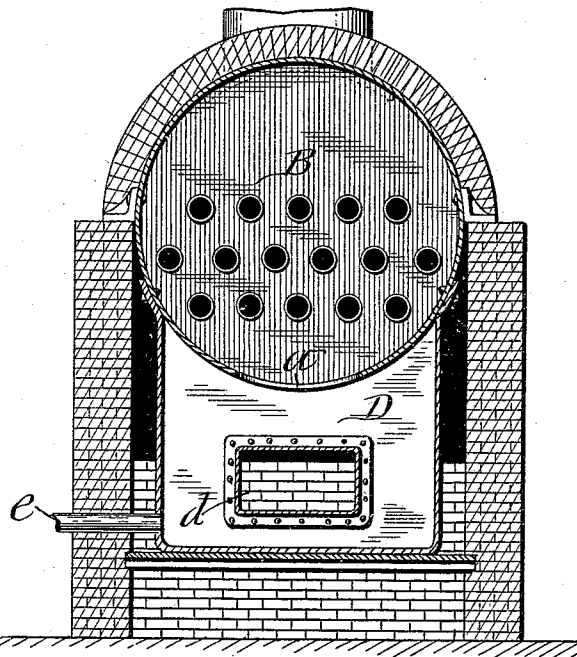
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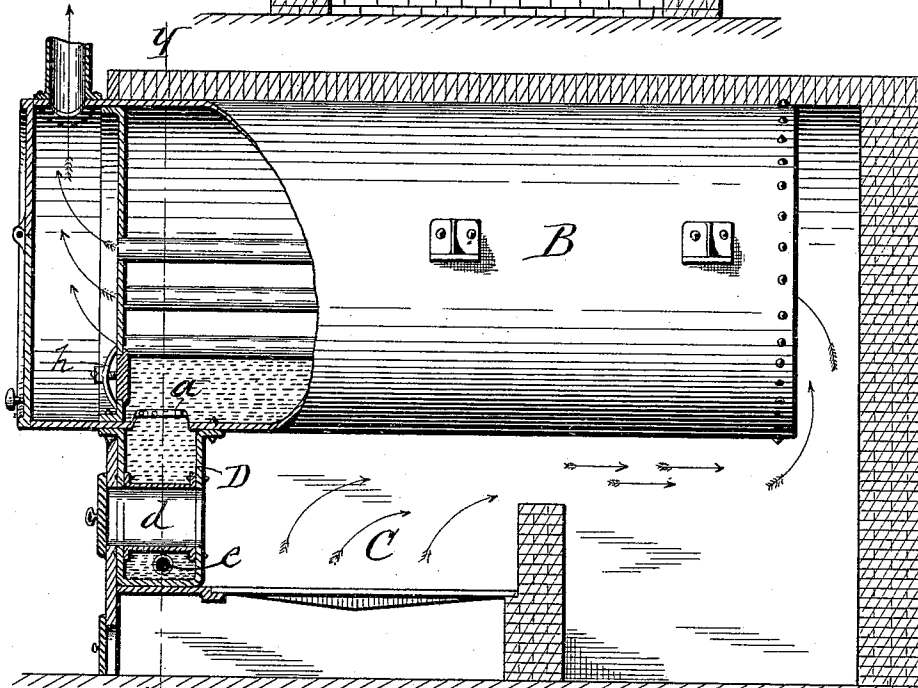
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*Fig. 1*



*Fig. 2*

WITNESSES:

*C. C. Combs*  
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# UNITED STATES PATENT OFFICE.

JOHN J. TONKIN, OF OSWEGO, NEW YORK.

## STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 526,062, dated September 18, 1894.

Application filed March 28, 1894. Serial No. 505,389. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN J. TONKIN, of Oswego, in the county of Oswego, in the State of New York, have invented new and useful  
5 Improvements in Steam-Boilers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention is designed to be applied to  
10 any kind of horizontal boilers, chiefly to boilers already in use and of the class which have the shell maintained intact from end to end or formed without any depending water compartment in front of the fire box.

15 The object of the invention is to attach such water compartment or water chamber to the front portion of a boiler in such a manner as to be supported thereby in a suspended position and have direct communication with  
20 the interior of the boiler, and provided with a hand-hole in proximity to the opening through which the water-chamber communicates with the boiler, said hand-hole affording ready access to the interiors of both the  
25 boiler and the aforesaid water chamber for cleaning the same when required; and to that end the invention consists in the improved construction and combination of parts hereinafter described and specifically set  
30 forth in the claim.

In the annexed drawings Figures 1 and 2 are longitudinal sectional views of steam boilers embodying my invention. Fig. 3 is a vertical transverse section on line—X—X—  
35 in Fig. 1 and Fig. 4 is a vertical transverse section on line—Y—Y— in Fig. 2.

Similar letters of reference indicate corresponding parts.

40 —B— represents a horizontal return flue boiler which originally was formed without any depending water-compartment in front of the fire box —C—. To furnish such a boiler with a depending water-front, I cut an aperture —a— either in the lower portion of the  
45 front fluesheet —b— as shown in Fig. 1 of the drawings, or in the bottom of the front portion of the boiler-shell as illustrated in Fig. 2 of the drawings.

50 —D— represents the additional water-compartment or chamber designed to form the front of the fire-box. This water front consists of a chamber formed separate from the boiler and provided with an opening corresponding to the aperture —a— and is riveted

directly to the boiler shell along the edges of 55 the aforesaid openings as shown respectively in Figs. 1 and 2 of the drawings. These openings permit free circulation of water from the chamber —D— to the interior of the boiler. Said water front is formed with an opening 60 —d— through which to introduce the fuel to the fire box.

—e— denotes the feed-water pipe which is attached to the lower portion of the water-front —D—. The water is thus effectually 65 heated in said front before it enters the boiler proper.

In order to afford ready access to the interiors of both the boiler —B— and chamber —D—, I provide the hand-hole —h— in prox- 70 imity to the openings through which the boiler and chamber communicate with each other as shown.

The salient feature of my invention is the herein described peculiar attachment of the 75 water-front of the fire box to a plain return flue boiler already set or designed to be set over a fire box built entirely of masonry, which attachment I effect without resorting to the employment of connecting pipes be- 80 tween the said water-front and boiler-shell, which pipes are liable to become choked by sediment and incrustation on the interior of the pipes, and while obviating this defect, I at the same time firmly unite the water-front 85 with the boiler-shell so as to support the former in a suspended position on the boiler and maintain said parts permanently in their position in relation to each other, and afford ready access to their interiors for cleaning 90 the same when required.

What I claim as my invention is—

The combination of the boiler —B— provided in its lower portion at the front of the fire-box with the opening —a—, and the 95 water-chamber —D— riveted directly to the boiler around said opening and communicating through the latter with the interior of the boiler, and a hand-hole in proximity to said opening substantially as described and 100 shown.

In testimony whereof I have hereunto signed my name this 19th day of March, 1894.

JOHN J. TONKIN.

Witnesses:

NORMAN L. BATES,  
MAX B. RICHARDSON.