

No. 754,415.

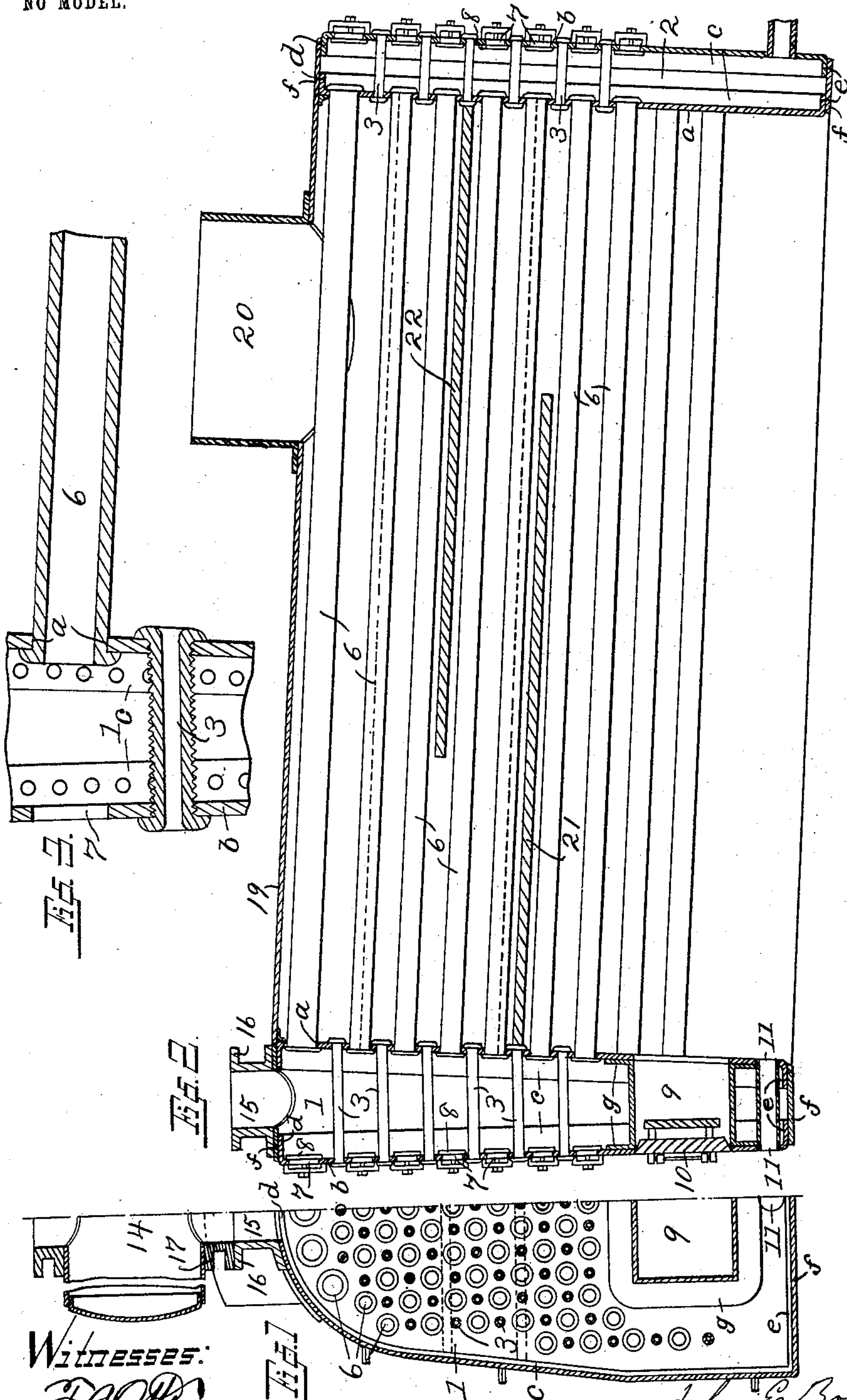
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J. E. BOSSINGHAM & F. EMLING.

WATER TUBE BOILER.

APPLICATION FILED DEC. 5, 1902.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN E. BOSSINGHAM AND FRANK EMLING, OF OSWEGO, NEW YORK.

WATER-TUBE BOILER.

SPECIFICATION forming part of Letters Patent No. 754,415, dated March 15, 1904.

Application filed December 5, 1902. Serial No. 133,953. (No model.)

To all whom it may concern:

Be it known that we, JOHN E. BOSSINGHAM and FRANK EMLING, citizens of the United States, residing at Oswego, county of Oswego, and State of New York, have invented new and useful Improvements in Water-Tube Boilers, of which the following is a specification.

Our invention relates to improvements in water-tube boilers.

The object of our invention is to provide a form of construction having a maximum heat-absorbing surface in proportion to weight, regard being also had for economy and simplicity in construction, strength, and durability and for convenience in repairing and cleaning the boiler.

In the following description reference is had to the accompanying drawings, in which—

Figure 1 is a front elevation, drawn partly in vertical section, through the front water-leg. Fig. 2 is a vertical longitudinal sectional view of the invention. Fig. 3 is an enlarged view of the steam and water tight joint.

Like parts are identified by the same reference characters in the several views.

1 and 2 are front and rear water-legs, each formed with connecting-stays 3 between the front and rear plates, preferably in the form of screw-threaded sleeves, the ends of which are expanded after the stays are in position, as shown in the drawings. Water-tubes 6 communicate between the interior cavities of the respective legs, the ends of these tubes being inserted through suitable apertures in the inner plates *a* of the water-legs and expanded or otherwise secured in position. The tubes also serve to support the water-legs. To facilitate expanding the tubes and also to provide for cleaning them, we have provided hand-holes 7 in the outer plate *b* of each water-leg, one such hole being provided for each water-tube. These holes are kept normally closed by caps 8 of ordinary construction. The front water-leg is provided with a feed-passage 9 (closed by a door 10) and a tubular poke-hole or gas-tube 11, whereby oil or gas may be fed into the combustion-chamber. The side walls of these openings also serve to connect and reinforce the opposing walls, as in the case of the bolt-receiving

sleeves. A steam-chamber 14 is mounted on the water-leg 1, with which it communicates through a tubular neck 15, the leg being provided with head-flanges 16, to which the chamber-supporting stand 17 is bolted.

The boiler is inclosed by a jacket 19, (which may be covered with asbestos or any other non-heat-conductor,) with smoke-aperture at 20 and deflecting-plates 21 and 22 interposed between the water-tubes to prevent direct draft, the lower of the plates 21 extending from the front water-leg rearwardly and the upper plate extending from the rear water-leg forwardly, whereby the smoke and heated gases are caused to traverse the heating-space three times before reaching the stack. Any desired number of these deflecting-plates may be employed. The foundation, grate, and ash-pit may be of any ordinary construction, and are therefore not shown in the drawings.

It will be understood that any desired connections may be made with the water-legs, such as the blow-off pipe 25, or with the steam-chamber, such as the steam-supply pipe 26. As novelty is not predicated upon these features or upon the attachments ordinarily applied to boilers, they are not shown or described in detail. The jacket 19 is preferably formed in sections, as indicated at K in Fig. 2, whereby a section may be readily removed to repair the tubes.

Referring more especially to the construction of the water-legs, it will be observed that the front and rear legs *a* and *b* are provided with inwardly-projecting side flanges *c* and top and bottom flanges *d* and *e*, respectively. The flanges are connected in any suitable manner with a band *f*, which encircles the leg. The walls of the feed-passage 9 are also provided with outwardly-extending flanges *g*, which are secured to the inner faces of the plates *a* and *b* of the front water-leg. Any ordinary means for making the joints steam and water tight may be employed, the parts being connected by rivets, as shown in the enlarged view given in Fig. 3, or in any other suitable manner.

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

1. In a boiler, a set of front and rear water-legs forming front and rear walls; each water-leg being composed of front and rear plates, having inturned flanges connected with each
5 other by an encircling band; water-tubes connecting the water-legs, hand-holes in the outer plates of the water-legs in line with said tubes; the front water-leg being provided in its lower portion with a tubular fuel-receiving
10 aperture of larger size than the hand-holes, and a fuel-door for said aperture; together with an inclosing sheath for the water-tubes, formed in longitudinal sections having end connection with the water-legs.
- 15 2. In a boiler, a water-leg formed of front and rear plates provided with inturned flanges

and a connecting-band secured to said flanges; said water-leg being arranged to form the entire front of the boiler and its furnace, with a tubular fuel-aperture leading to the combustion-chamber and provided with a fuel-door; a steam-receiving chamber; and a tubular neck communicating between the water-leg and steam-chamber through the band which connects the front and rear walls. 20 25

In testimony whereof we affix our signatures in the presence of two witnesses.

JOHN E. BOSSINGHAM.

FRANK EMLING.

In presence of—

T. J. DONOVAN,

F. T. CABELL.