

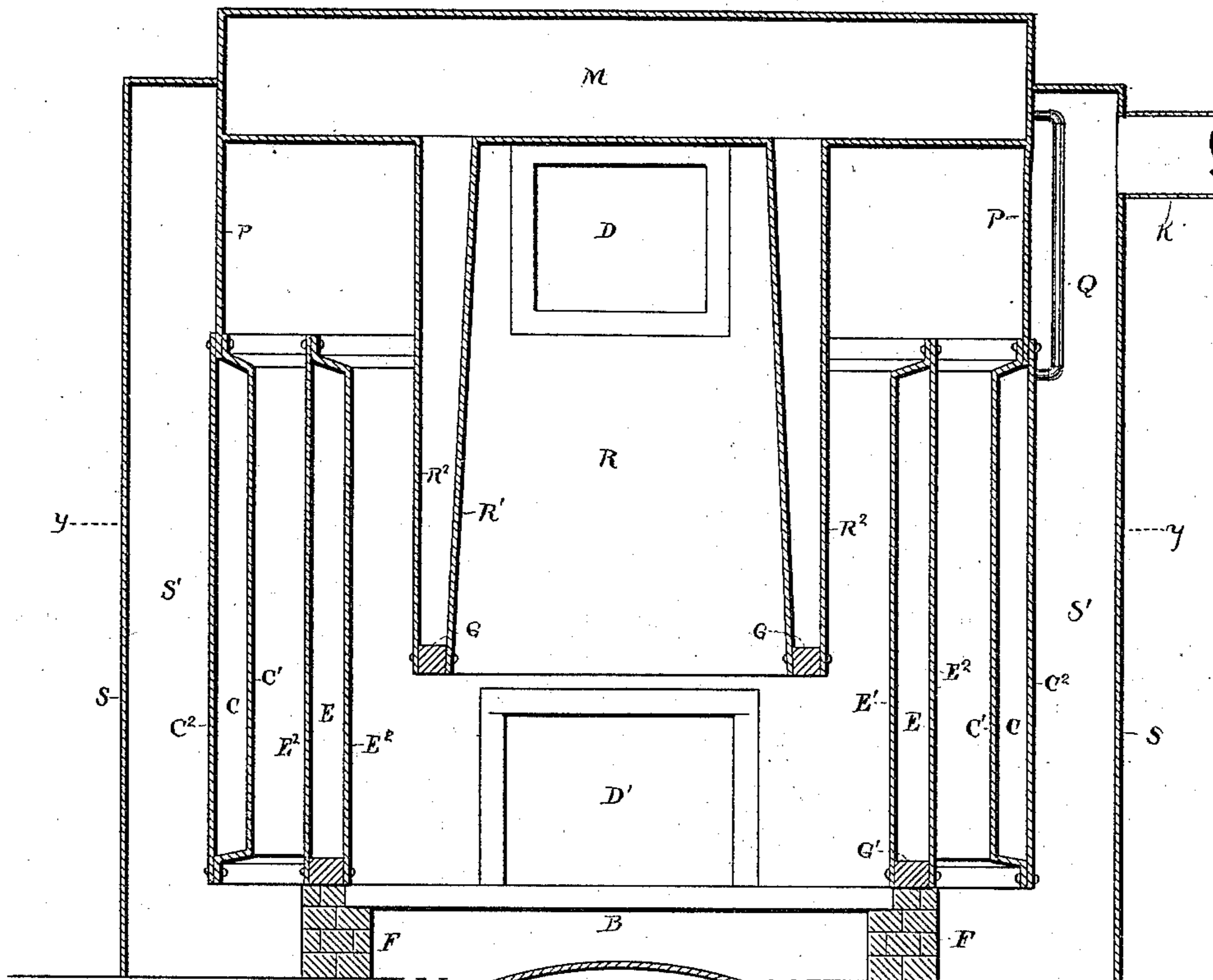
(No Model.)

J. CURRY.

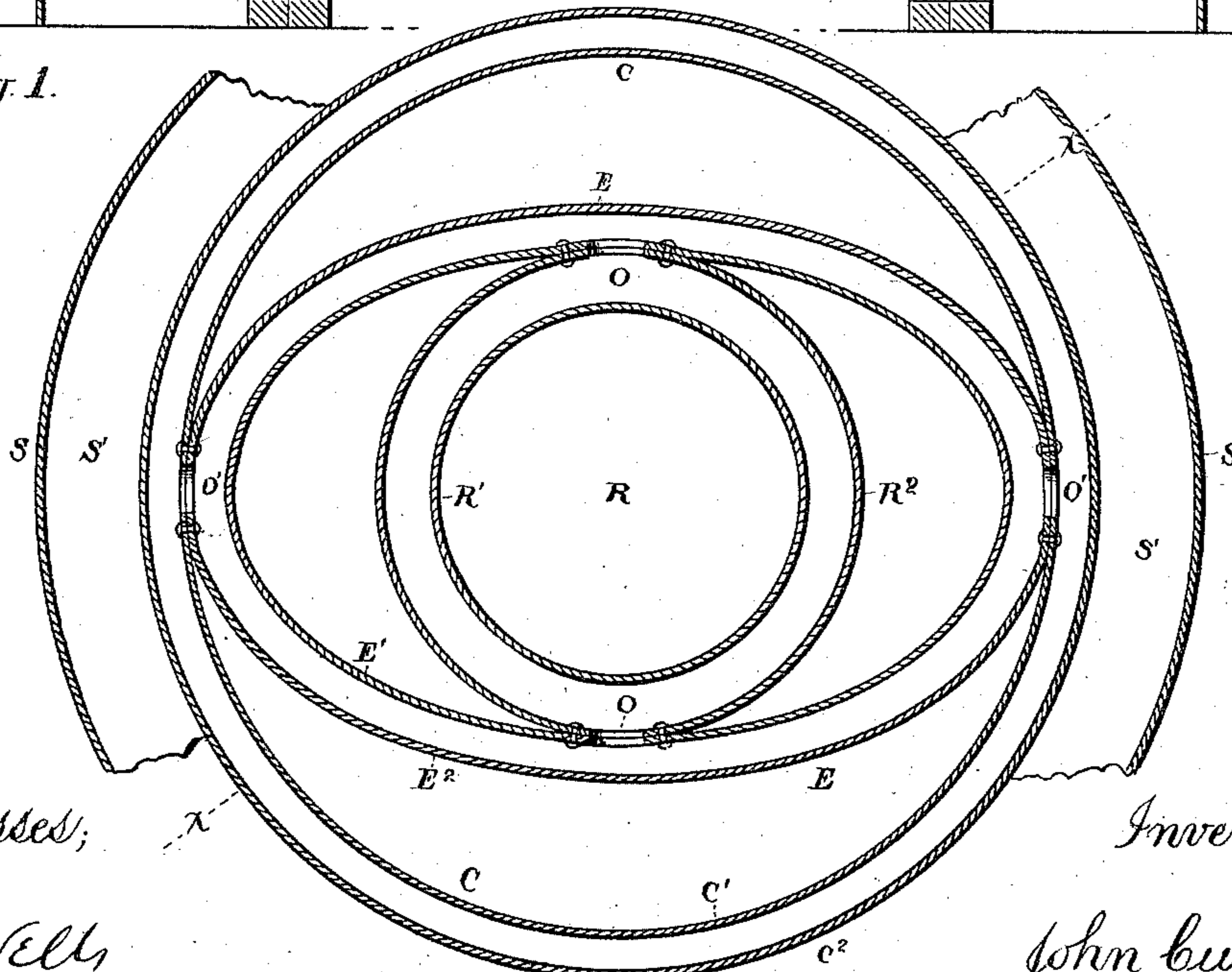
## LOW PRESSURE STEAM BOILER.

No. 330,300.

Patented Nov. 10, 1885.



*Fig. 1.*



*Fig. 2.*

Witnesses;

I.H. Wells,

A. Keithley

*Inventor,*

John Curry.

per A. B. Upham,  
His Attorney.

# UNITED STATES PATENT OFFICE.

JOHN CURRY, OF PEORIA, ILLINOIS.

## LOW-PRESSURE STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 330,300, dated November 10, 1885.

Application filed January 19, 1885. Serial No. 153,257. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN CURRY, of Peoria, in the county of Peoria, in the State of Illinois, have invented an Improved Low-Pressure Steam-Boiler; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making a part of this specification, in which like letters of reference refer to like parts, and in which—

Figure 1 represents a vertical section through X X in Fig. 2; Fig. 2, a horizontal section through Y Y in Fig. 1.

The object of this invention is the construction of a boiler designed to heat water for warming buildings, the formation of which shall be of the maximum convenience in putting together, of economical heating capacity, and of great durability.

In carrying out this purpose I have constructed the following-described boiler, consisting of the interior double-walled reservoir for containing the fuel, of an elliptical double-walled partition surrounding said reservoir and touching the same at two opposite points, and of a larger double-walled cylinder surrounding said elliptical partition and touching the same at its larger diameter, suitable openings being made through the shells composing said double walls at their touching-points, to permit of the circulation of water from one to another of the interwall-spaces.

In the drawings, R is the reservoir, consisting of the two concentric shells R' and R<sup>2</sup>. The annular space between said shells is closed at the bottom thereof by means of the ring G, riveted to the lower edges of the same. These shells R' R<sup>2</sup> are secured to the under side of the shallow cylinder M, the annular space between opening into the said shallow cylinder.

About the lower portion of the reservoir R, and touching the outer shell thereof at two diametrically-opposite points, is the elliptical double-walled partition E, consisting of the two shells E' E<sup>2</sup>. The interior shell, E', is riveted to the shell R<sup>2</sup> at the touching-points, and an opening, O, made through said shells at such places, the rivets surrounding the openings. This elliptical double-walled partition E is of nearly the same height as is the cylinder R, but its relative position is lower, as shown in Fig. 1. This permits the door D, which gives

access to the reservoir R, to be located just above the upper edge of the double-walled partition E, and the stove-door D' to be below the lower edge of the reservoir R. In a similar way the double-walled cylinder C surrounds the elliptical double-walled partition E, the touching shells E<sup>2</sup> and C' being apertured and riveted together, as shown in Fig. 2.

The two shells forming the double-walled cylinder C are united at their edges by having the edge of the shell C' flanged or bent over to the shell C<sup>2</sup> and riveted thereto. In the same way the upper edges of the elliptical double-walled partition E are secured together; but the lower edges of the same are riveted to the ring G'.

The supporting-foundation F is placed beneath the elliptical double-walled partition E. The reservoir R and the cylinder C, being riveted to said elliptical double-walled partition, are held thereby. The grate-bars B rest upon this foundation F between the elliptical double-walled partitions E.

The space between the upper edge of the cylinder C and the cylindrical dome M is closed by the partition P, of sheet metal or other suitable material. About the cylinder C, and concentric therewith, is the shell S, having its upper edge joined to the dome M or to the upper edge of the cylinder C. The base of said shell S rests upon the floor of the furnace, and is suitably secured thereto.

In use this boiler is filled with water up to and a little over the bottom of the dome M. Through the annular opening from said dome to the interwall-space of the reservoir R the water passes, and from thence to the interwall-space of the elliptical double-walled partition E, through the openings O. From here the water goes through the openings O' until the interwall-space of the cylinder C is also filled. The fire being built, and the reservoir R being filled with coal or other fuel introduced through the door D, the smoke and other heated gases of combustion rise up through the two crescent-shaped passages between the said reservoir and the elliptical double-walled partition E. Being deterred by the partition P from passing directly to the exterior space, S', the gases then turn downward and go through the two crescent-shaped passages between the elliptical double-walled par-

tion and the cylinder C, and enter said space S' at the bottom thereof. From here the products of combustion rise up and pass out through suitable smoke-pipes, K; but it will  
 5 be noticed that from the beginning to the end of its journey at the smoke-pipe the heat passes in such close proximity to the interwall-contained water that but a small proportion of the caloric in the products of combustion can fail  
 10 to be transmitted to said water. The steam arising from the heated water collects in the dome M, and is conveyed from thence through suitable pipes to the apartments to be warmed.

To enable the steam to pass more readily  
 15 from the cylinder C to the dome M, I provide one or more convey-pipes, Q, opening into the upper part of said cylinder C and into the said dome M. Through these pipes Q the steam can go to the dome M directly without forcing  
 20 its way through the elliptical double-walled partition E and the reservoir.

In constructing small boilers I often omit the cylinders C and employ simply the reservoir R, the elliptical double-walled partition  
 25 E, and an enveloping-shell, S.

The openings O from the different interwall-spaces may be in each case a single long vertical slot reaching from the bottom to the top of each shell, or there may be several small  
 30 apertures, one over the other, taking the place of a single long one.

Having now described my invention sufficiently to enable any one skilled in the art to manufacture the same, what I claim as new,  
 35 and for which I desire Letters Patent, is as follows:

1. The combination, in a boiler, of the double-walled cylinder and the double-walled elliptical partition, riveted or otherwise secured together at their lines of contact, and  
 40 having openings through the touching walls at said lines of contact, substantially as and for the purpose specified.

2. In a boiler, the dome M, the double-walled

reservoir R, and the door D, opening radially  
 45 through said reservoir just beneath said dome, in combination with the elliptical double-walled partition E, surrounding said reservoir, and secured thereto at their lines of contact, and having openings through the touching  
 50 walls at said lines of contact, substantially as and for the purpose set forth.

3. In a boiler, the cylindrical dome M, the double-walled reservoir R, and the door D, in combination with the elliptical double-walled  
 55 partition E, surrounding said reservoir and secured thereto at the lines of contact, and having openings through the touching shells at said lines of contact, substantially as described, and the double-walled cylinder C, surrounding  
 60 said elliptical partition and secured thereto at the lines of contact, and having openings through the touching shells at said lines of contact.

4. In a boiler, the dome M, the double-walled  
 65 reservoir R, and the door D, giving access to said reservoir, in combination with the elliptical double-walled partition E, surrounding said reservoir and riveted thereto, and having openings through the touching shells at  
 70 their lines of contact, the double-walled cylinder C, surrounding said partition E and riveted thereto, and having openings through the touching shells at the lines of contact, the partition P, closing the space between the upper  
 75 edge of said cylinder C and the dome M, one or more pipes, Q, for conveying steam from the said cylinder C to said dome, and the inclosing-shell S, as set forth, for the purposes specified.  
 80

In testimony that I claim the foregoing invention I have hereunto set my hand this 12th day of January, 1885.

JOHN CURRY.

Witnesses:

A. B. UPHAM,  
 A. KEITHLEY.