

(No Model.)

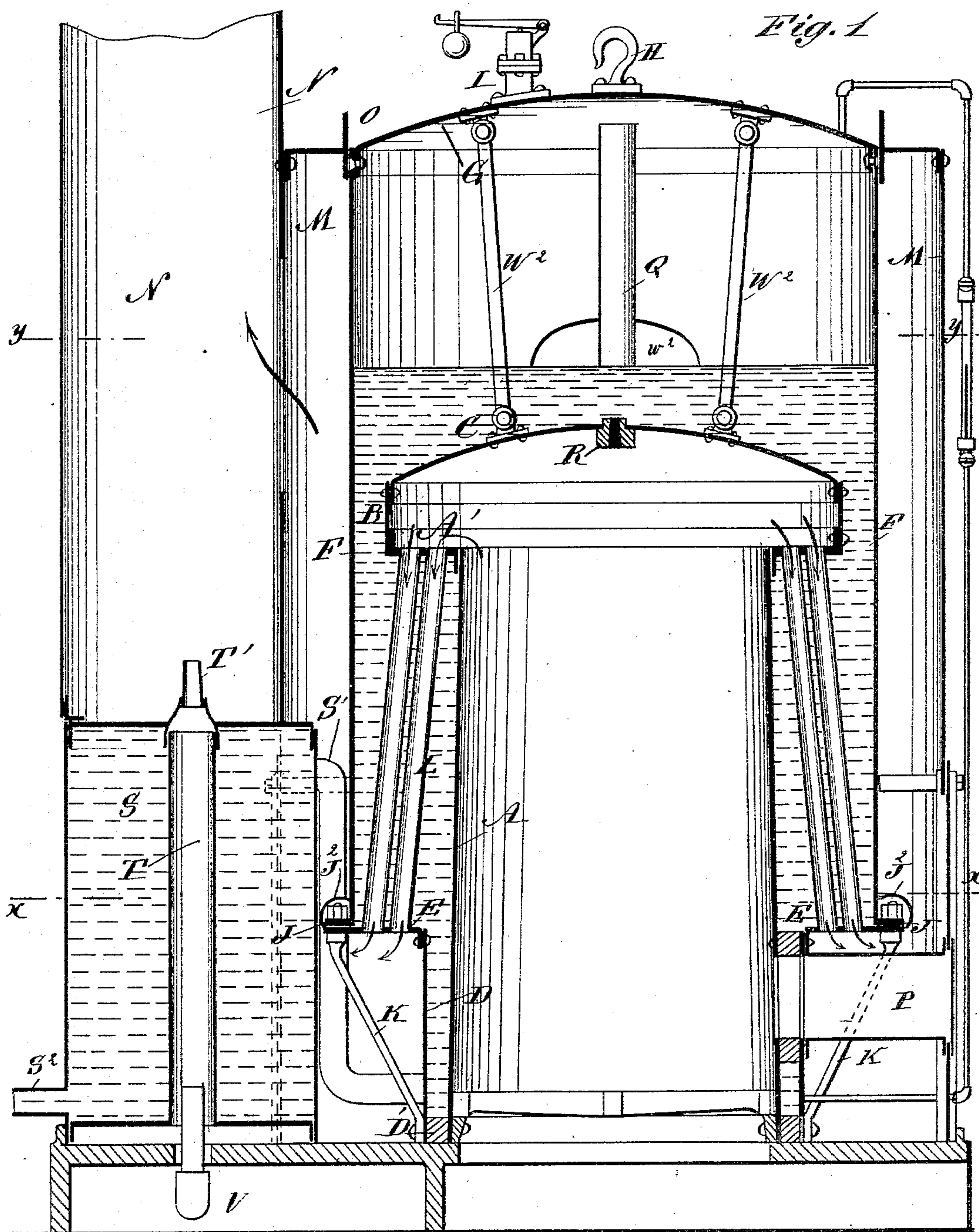
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J. ROSELLO.

## STEAM BOILER.

No. 304,133.

Patented Aug. 26, 1884.



WITNESSES :

C. Nereux  
C. Sedgwick

INVENTOR:

INVENTOR:  
*J. Rosello*  
BY *Munn & Co*  
ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

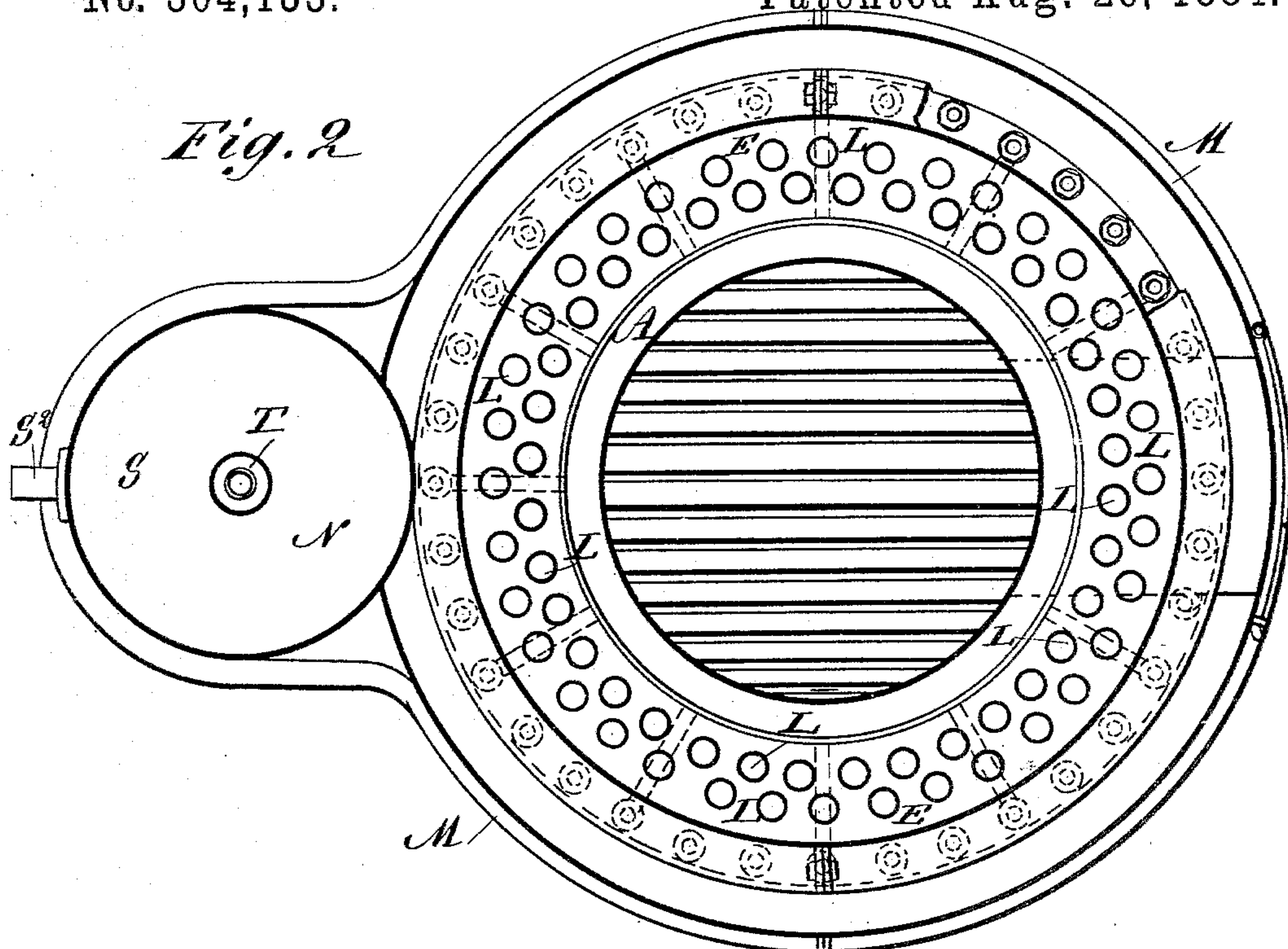
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STEAM BOILER.

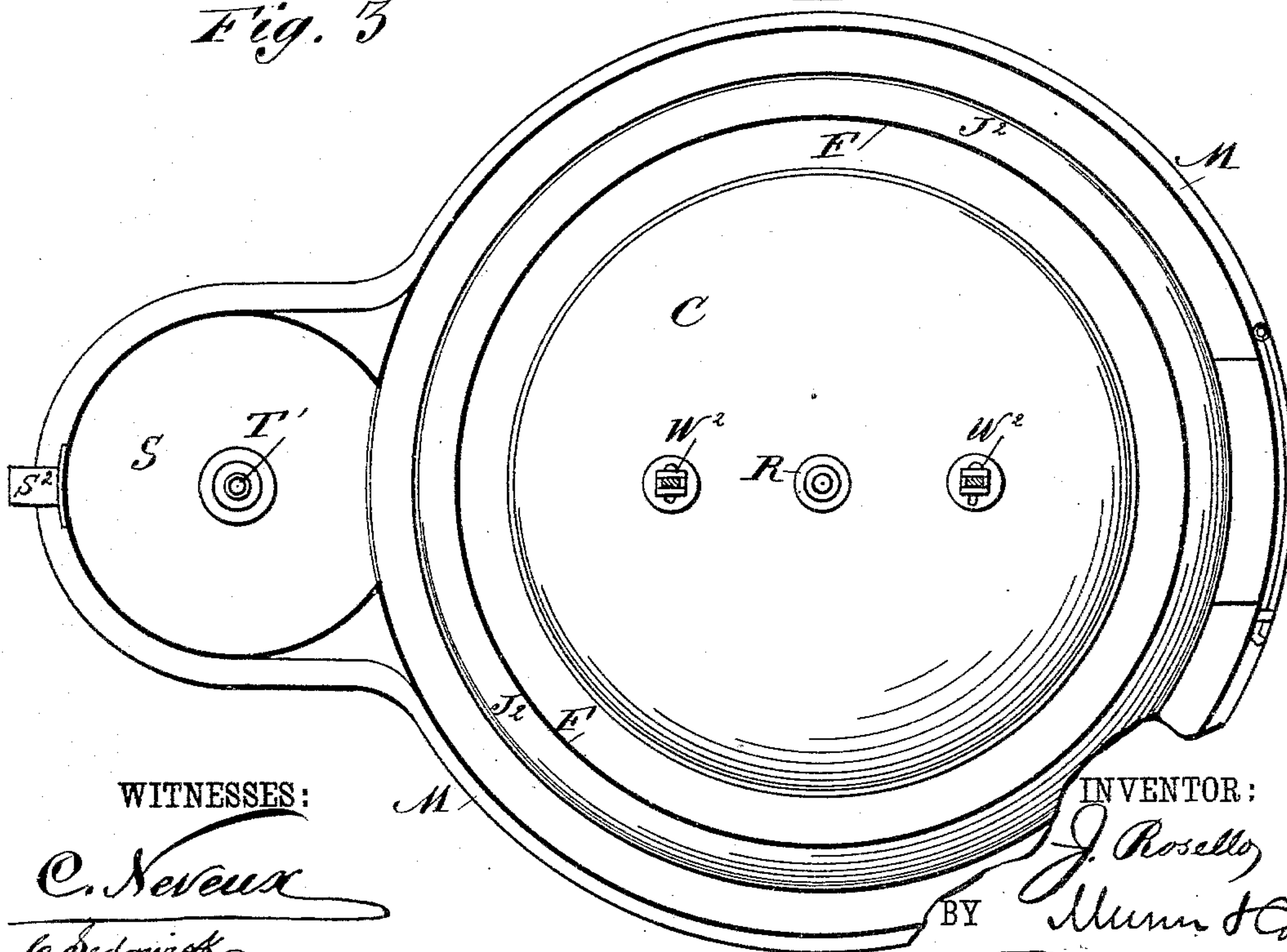
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*Fig. 2*



*Fig. 3*



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# UNITED STATES PATENT OFFICE.

JOSÉ ROSELLO, OF HAVANA, CUBA.

## STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 304,133, dated August 26, 1884.

Application filed June 17, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, JOSÉ ROSELLO, of Havana, Cuba, have invented a new and Improved Steam-Boiler, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved steam-boiler, which is so constructed that it can be cleaned very readily, and scale and other deposits removed from the water-tubes and the inner surface of the sides of the boiler, whereby explosions of the boiler are to a great extent avoided.

The invention consists in various parts and details, and combinations of the same, as will be fully set forth and described hereinafter, and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal sectional elevation of my improved steam-boiler. Fig. 2 is a sectional plan view of the same on the line  $xx$ , Fig. 1. Fig. 3 is a sectional plan view of the same on the line  $yy$ , Fig. 1.

The boiler is constructed with a cylindrical inner shell, A, in which the fire-box is located. At its top the said shell is provided with an outwardly-projecting annular flange, A', from the edge of which a plate, B, projects upward, to the upper edge of which plate the dome C is riveted. A plate, D, surrounding the lower third of the cylindrical part A, has its bottom edge securely united with the bottom edge of the cylindrical part A by heavy rivets or bolts passed through the said parts A and D, and through blocks D', interposed between them. A horizontal annular part or plate, E, is riveted to the upper edge of the upright part D, and projects horizontally from the same.

The cylinder F, forming the outside shell of the boiler, is provided in its top with a cap, G, to the middle of the upper surface of which a strong hook, H, is secured. A safety-valve, I, is arranged on the top of the cap or hood G, and the pipes for connecting the boiler with the engine are held in the said cap or hood. The outer cylinder, F, is provided at its bottom with an outwardly-projecting annular flange, J, the outer edge of which is flush with the outer edge of the circular plate E. Knee-braces K have their lower ends riveted or

bolted to the outer surface of the upright part D at the bottom, and the upper ends of the said knee-bolts or braces are passed through the horizontally-projecting annular part E, and through the flanges J of the cylindrical part F, and nuts are screwed on the upper ends of the said bolts. Smoke pipes or flues in one or more circular rows extend from the flange A' at the top of the cylindrical shell A down to the annular horizontally-projecting part E, thus forming a passage for the products of combustion from the upper part of the fire-place through the water in the boiler to the space between the outer shell, F, of the boiler and the casing M, which surrounds the boiler, and forms the flue for the circulation of the products of combustion before the same pass into the smoke-stack N, with which the said casing M is connected. The casing M is provided at its top with a neck, O, in which the outer shell, F, of the boiler fits very closely, the rivets uniting the hood or cap G of the boiler with the outer shell, F, being countersunk, so that the outer surface of the shell F will be perfectly smooth, and will slide through the neck O without being obstructed.

The fire-door channel P of the boiler is arranged below the horizontally-projecting part E of the outer shell. The pipe Q, for conducting steam to the engine, extends from the top of the boiler and down between the inner shell, A, and the outer shell, F, to the horizontal part E, through the same and out through the side of the casing.

In the top of the dome C of the inner shell a fusible plug, R, is held to close an opening in the said dome. When the level of the water sinks below the said plug, the heat fuses the plug and permits the steam to enter the fire-place and to extinguish the fire, thereby preventing an explosion in case the water sinks below the low-water mark.

In the bottom of the smoke-stack N a cylindrical feed-water heater, S, is arranged, the top of which is connected by a pipe, S', with the bottom of the boiler. The bottom of the feed-water heater is connected by a pipe, S'', with the water-supply reservoir. A pipe, T, extends vertically through the feed-water heater S, and is provided in its top with a nozzle, T', projecting into the smoke-stack. The exhaust-steam passing up through the



pipe T heats the same and the feed-water surrounding it, and the steam passing through the nozzle T' into the smoke-stack creates a draft in the same.

5 If the boiler is to be cleaned, the nuts are unscrewed from the upper ends of the knee bolts or braces K, and the outer shell, F, and its cap or hood G are raised by means of suitable hoisting gear or tackle connected with the  
10 hook H on the top of the said cap or hood. The scale and other deposits can then be removed from the inner surface of the outer shell and from the outer surface of the inner shell, from the outer surface of the flues L, from the  
15 top of the projection E, the top of the dome C, &c., and all deposits, scale, incrustations, &c., that may have formed on the walls of the boiler can be removed and the boiler cleaned thoroughly. The attendant can reach down  
20 between the upright part D and the outer surface of the cylinder A and remove the scale from the side of the same. The mud collecting on the bottom of the pocket formed between the upright part D and the cylindrical  
25 shell A can easily be washed out. If the boiler is to be used again, the outer shell, F, is lowered down upon the horizontally-projecting part E, and is held in place securely by drawing up the nuts tightly, which are  
30 screwed on the upper ends of the knee bolts or braces K. As the smoke and products of combustion are compelled to rise in the fire-place formed in the cylinder A and then pass  
35 down through the flues L, which are surrounded by water, and then circulate on the outside of the outer shell, F, all the heat is utilized and none lost or wasted.

The nuts on the upper ends of the braces K are covered by an annular cap, J<sup>2</sup>.

40 The top or cap G of the boiler and the dome C are connected by a series of staves or braces, W<sup>2</sup>, provided at their ends with eyes, through

which bolts are passed, which are also passed through apertured lugs on the under side of the top or cap G, and on the upper side of the dome C. If the upper part of the boiler is to  
45 be removed, the bolts holding the braces W<sup>2</sup> are withdrawn by a person who passes his hand through the armhole w<sup>2</sup>, provided in the outer shell, F, of the boiler, as shown in Fig. 1. 50

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

1. A steam-boiler consisting, essentially, of the main shell A, horizontal part A', cap C, 55 plate B, connecting cap C with the horizontal part A', outer lower section, D, horizontal part E, and upper section, F, tubes L, passing through plates A' and E, cap G, secured to section F, and removably connected with the  
60 cap C, and a shell with a smoke-exit communicating with the lower ends of the tubes L, substantially as set forth.

2. In a steam-boiler, the combination, with the inner shell, A, of the upright bottom part, 65 D, of the outer shell, the horizontally-projecting part E at the top of the part D, the outer shell, F, having a cap or hood, G, and the knee bolts or braces K, projecting from the bottom of the part D upward and through the  
70 outer edge of the part E, and through the flange of the part F, substantially as herein shown and described.

3. The combination, with a steam-boiler having its outer shell formed of a fixed section and 75 a vertically-removable section, of a casing surrounding the outer shell, and provided with an opening in which the said shell can fit closely, substantially as herein shown and described.

JOSÉ ROSELLO.

Witnesses:

FRANCISCO ARNDT,  
ALFONSO PESANT.