

T. S. La France,

Steam Boiler.

No. 108604.

Patented Oct. 25. 1870.

Fig. 1.

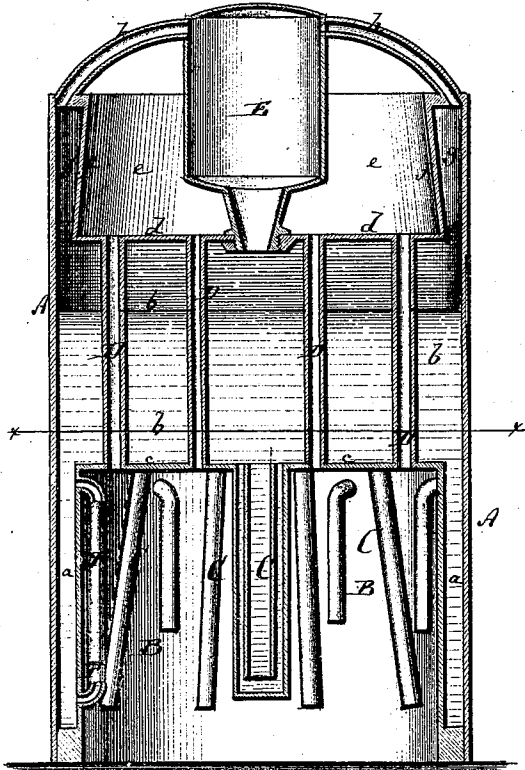


Fig. 2.

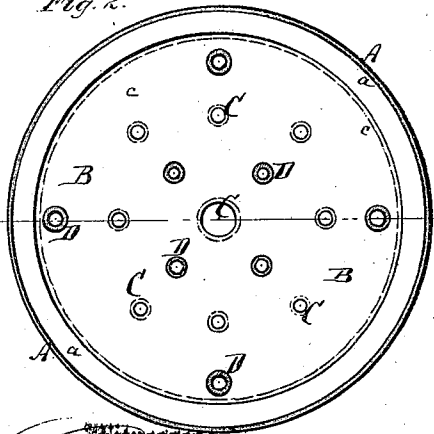
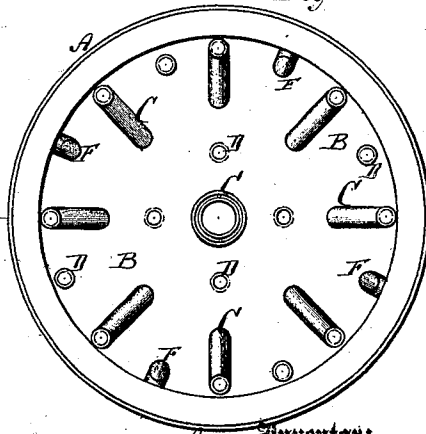


Fig. 3.



Witnesses:

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TRUCKSON S. LA FRANCE, OF ELMIRA, NEW YORK.

IMPROVEMENT IN STEAM-GENERATORS.

Specification forming part of Letters Patent No. 108,604, dated October 25, 1870.

To all whom it may concern:

Be it known that I, TRUCKSON S. LA FRANCE, of Elmira, in the county of Chemung and State of New York, have invented a new and Improved Steam-Generator; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a vertical central section of my improved steam-generator. Fig. 2 is a horizontal section of the same, taken on the plane of the line *x x*, Fig. 1. Fig. 3 is an inverted plan view of the fire-box.

Similar letters of reference indicate corresponding parts.

My invention relates to steam-generators; and it consists in certain improvements thereon, which will first be described in connection with all that is necessary to a full understanding thereof, and then clearly specified in claims.

A in the drawings represents the outer case or shell of the boiler. B is the fire-box within the same. The fire-box is cylindrical, and is set up in the lower part of the case A, so as to leave an annular water-space, *a*, around it, and a full water-space, *b*, above it.

From the top plate, *c*, of the fire-box is suspended a series of pipes, C C, into the fire, the said pipes being closed at their lower ends, and provided with internal tubes or partitions for circulation. The smoke-pipes D D project from the top plate, *c*, upward into the head *d* of the boiler. The head is sunk or depressed to form a smoke-chamber, *e*, as shown, and around its vertical side *f* an annular steam-chamber, *g*.

Within the smoke-chamber *e* is set up a superheating dome or vessel, E, which is open at the lower end to communicate with *b*, while its top is, by means of pipes *h h*, connected with the top of the chamber *g*.

By having the sides of the boiler carried up above the smoke-flues D, I am enabled to have the water above the upper ends of the same, whereby said smoke-flues are fully protected, while at the same time increased heating-surface is obtained.

By means of the chamber *g* and dome E, I obtain considerable superheating-surface and an arrangement for utilizing the entire heat of the smoke previous to the escape of the latter.

Additional circulating-pipes F F may be arranged on the inner sides of the fire-chamber. They communicate at their upper and lower ends with the water-space *a*, as is clearly shown in Fig. 1. I obtain thereby a complete circulation in the lower part of the boiler.

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

1. The dome E, chamber *g*, and pipes *h*, combined and arranged with water-space *b*, as specified.

2. The combination of steam-chambers E *g* and smoke-chamber *e*, when relatively arranged as and for the purpose described.

3. The fire-space B, water-spaces *a b*, pipes C, smoke-spaces D *e*, and superheating-spaces E *g h*, all combined and relatively arranged as and for the purpose described.

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Witnesses:

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