H. Gerner

Flue and Tubular Boiler.

No. 48,805 Patented July 18, 1865.

Fig. 2

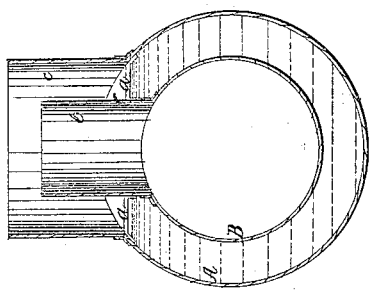


Fig. 1

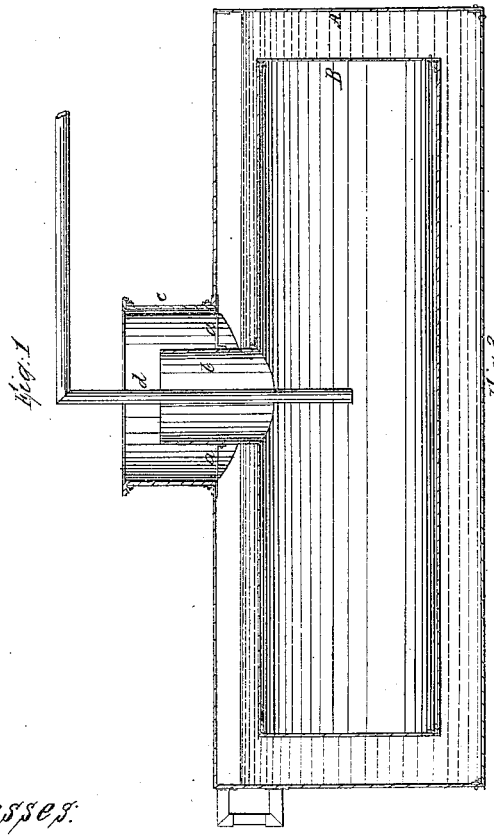
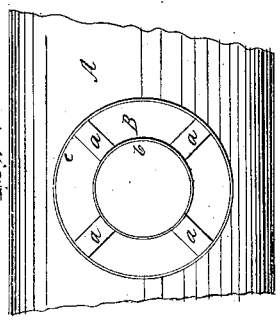


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

HENRY GERNER, OF NEW YORK, N. Y.

IMPROVEMENT IN STEAM-BOILERS.

Specification forming part of Letters Patent No. **48,805**, dated July 18, 1865.

To all whom it may concern:

Be it known that I, HENRY GERNER, of No. 20 Bleeker street, of the city, county, and State of New York, have invented a new and Improved Steam-Boiler; 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 a part of this specification, in which—

Figure 1 represents a longitudinal vertical section of this invention. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a partial plan or top view of the same.

Similar letters of reference indicate like parts.

This invention consists in arranging the steam dome or reservoir of a steam-boiler in the interior of its shell and of the water-space in such a manner that the shell of the boiler can be filled up with water nearly to the top, and the fire made to strike the same round its entire circumference; and, furthermore, the steam-reservoir of the boiler is surrounded by the heated water, and the radiation of heat from the same and the condensation and loss of steam consequent upon such radiation are avoided.

A represents a steam-boiler, made of sheet-iron or any other suitable material in the usual form and manner.

In the drawings a plain cylinder-boiler is represented; but my invention is applicable to flue or marine boilers and to tubular or locomotive boilers with the same advantage as to a plain cylinder-boiler.

The steam space or reservoir B of my boiler, instead of being placed on top of the boiler or above the water-space thereof, is placed in the interior of the same, as clearly shown in the drawings, and when the boiler is filled with water to its proper level said steam-reservoir is completely immersed in and surrounded by the water.

In a plain cylinder-boiler the reservoir B can be made round, as shown, but in tubular or flue boilers it must be made flat, or in any other convenient form or shape to accommodate itself to the space in the interior of the boiler above or between the flues. Said reservoir is suspended from the top of the boiler A by means of braces *a*, and a tube, *b*, extends from the same up in the dome *c*, so that the steam rising from the water in the boiler can find access to the interior of the steam-reservoir. The dome *c* is closed steam-tight, and a pipe, *d*, passes from the interior of the reservoir B through the top of said dome to convey the steam to the engine or other place where it is to be used. By this arrangement the steam-reservoir is completely surrounded by the heated body of water in the boiler, and all radiation of heat from the outside surface of the steam-reservoir is avoided. The steam remains dry and free from condensation; and, furthermore, the boiler A can be filled with water nearly to its top, and the fire can be made to strike its sides nearly all round, so that a larger heating-surface is obtained than in boilers of the ordinary construction, the upper portion of which is occupied by steam and cannot be exposed to the direct action of the fire.

I claim as new and desire to secure by Letters Patent—

The combination and arrangement of the cylindrical steam-reservoir B, located within the boiler A, the tube *b*, and eduction steam-pipe *d*, substantially in the manner and for the objects specified.

HENRY GERNER.

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