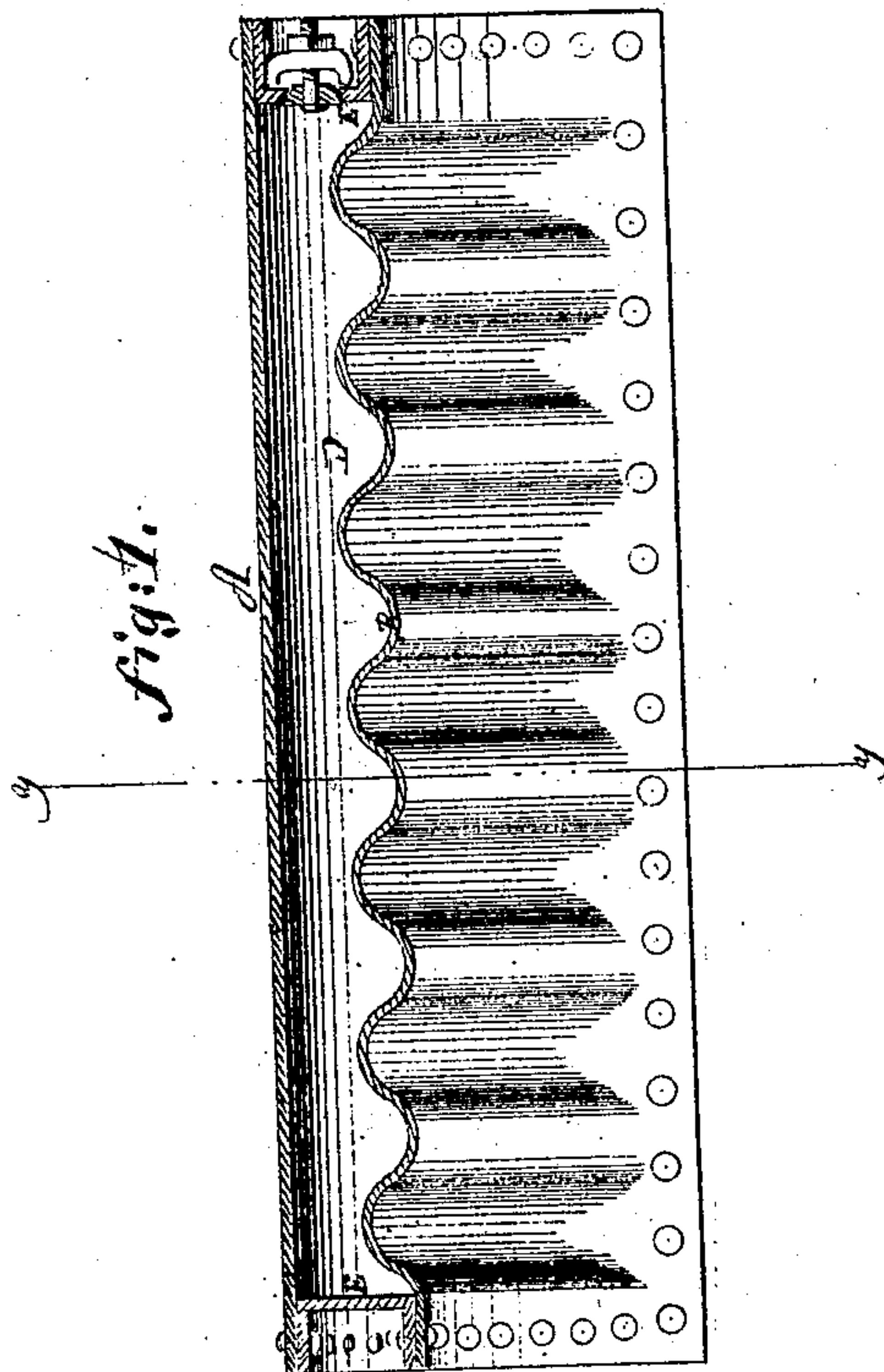
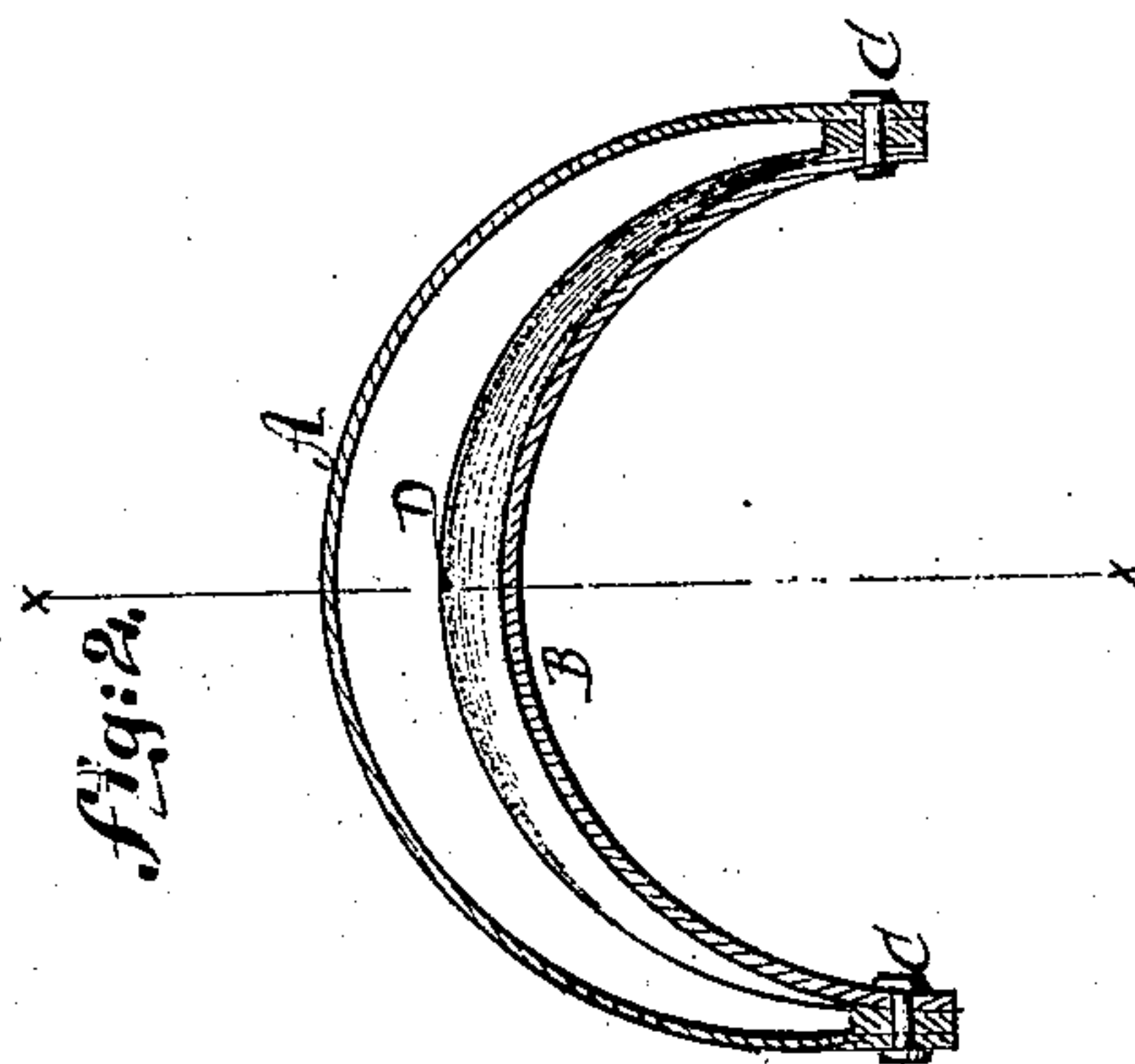


*J. C. Ludwig,*

*Boiler Furnace.*

*No. 102,287.*

*Patented Apr. 26. 1870.*



*Witnesses*  
*M. Vorländer*  
*L. S. Mahri*

*Inventor*  
*J. C. Ludwig*  
*per* *Wm. W. C.*  
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# United States Patent Office.

JOHN C. LUDWIG, OF STOCKTON, CALIFORNIA.

Letters Patent No. 102,287, dated April 26, 1870.

## STEAM-GENERATOR.

The Schedule referred to in these Letters Patent and making part of the same

### *To all whom it may concern:*

Be it known that I, JOHN C. LUDWIG, of Stockton, in the county of San Joaquin and State of California, have invented a new and useful Improvement in Steam-Generators; 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.

The object of this invention is to provide a steam-generator which shall be cheap, durable, and efficient, which shall be easier made and stronger than ordinary steam-boilers, and more economical of fuel; and

It consists in making the generator of crescent form in its cross-section, and with a corrugated fire-surface, as will be hereinafter more fully described.

In the accompanying drawing—

Figure 1 is a longitudinal vertical section of the generator on the line *x x* of fig. 2.

Figure 2 is a vertical cross-section on the line *y y* of fig. 1.

Similar letters of reference indicate corresponding parts.

This generator is composed of an outer shell, A, of semicircular form, but, preferably, forming more than a semicircle, as seen in the drawing, of any desired length and diameter.

An inner semicircular crown-sheet of fire-surface B, corrugated as seen in the drawing, but which circle may be of greater diameter than the shell, or it

may be of the same or of less diameter when the shell, forms more than half a circle, as seen, so that, when the two are riveted together at the points C C, as seen, a crescent-shaped space, D shall be left for the water and steam.

It is also provided with two heads, E E, secured in the crescent by flanges and rivets, or by long bolt rods, extending from one head to the other as may be desired.

This crescent-shaped generator is placed on a suitably-constructed arch or furnace, of either masonry or cast-iron, or of the two combined.

A dome or steam-chamber will be connected with the generator, and try-cocks applied to operate in the usual manner.

By corrugating the crown-sheet or concave portion B of the generator, the steam-generating surface is greatly increased, while the generator is vastly strengthened and rendered more durable thereby.

Having thus described my invention,

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

A steam-generator, constructed by uniting the circular portions A and B, when the latter is corrugated and the generator is provided with suitable heads, substantially as described.

JOHN C. LUDWIG.

Witnesses:

L. S. RINK,  
HENRY PIEL.