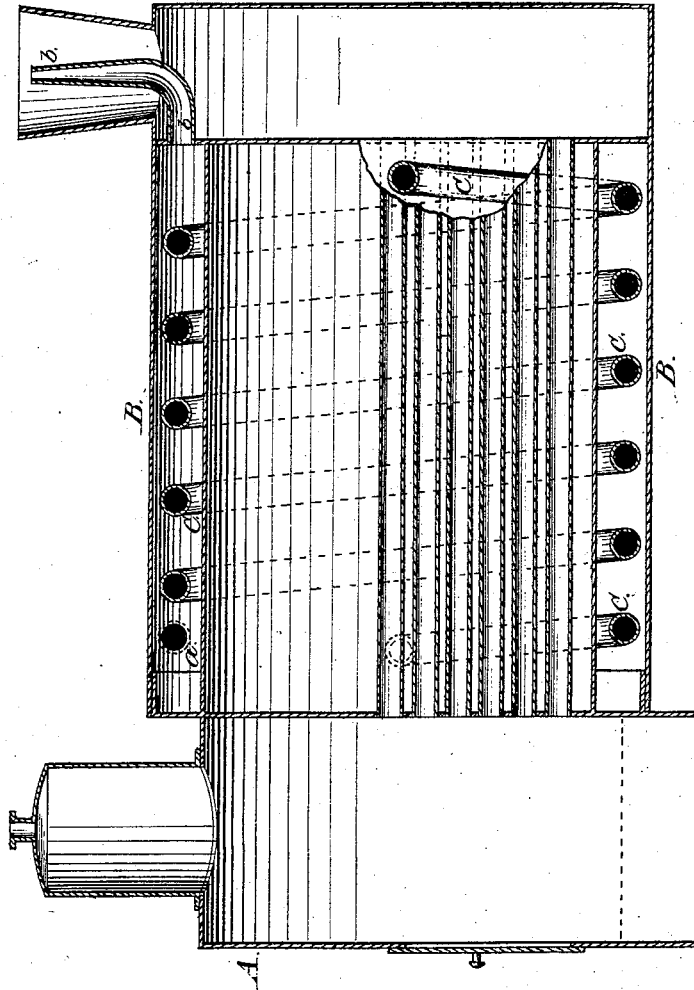


C. HEWINS.  
FEED-WATER HEATER.

No. 183,303.

Patented Oct. 17, 1876.



Witnesses:

John S. Lewis.  
Charles Ketchum.

Inventor:

Charles Hewins.

# UNITED STATES PATENT OFFICE.

CHARLES HEWINS, OF GREECE CITY, PENNSYLVANIA.

## IMPROVEMENT IN FEED-WATER HEATERS.

Specification forming part of Letters Patent No. **183,303**, dated October 17, 1876; application filed January 3, 1876.

*To all whom it may concern:*

Be it known that I, CHARLES HEWINS, of Greece City, in the county of Butler and State of Pennsylvania, have invented a new and useful Improvement in Steam-Generator Case and Feed-Water Heater, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to make a case for the whole or any part of a steam-generator, with space between the case and generator to receive the steam from the steam-engine, and to receive the feed-water pipe. I convey the steam from the engine into the space, and from it into the smoke-pipe or elsewhere, and put the feed-water pipe within the case, so that the steam exhausted from the cylinder may heat the water in the pipe and form a heated covering for the outside of the generator, as shown in the accompanying drawing, which is a longitudinal vertical section of the case and the part of the generator that is cased.

A is the steam-generator to which the case is applied. There is nothing peculiar in the construction of the generator, for the case may be applied to all kinds of steam-generators. All that is required is suitable means for holding the case, which may be varied in the different forms of generator to which the case may be applied. B is the case that surrounds the cylindrical portion of the generator, and it is made enough larger than the generator to give sufficient space for the steam and feed-water pipe. It may be made of thinner iron than the generator, and is fast-

ened to it at the ends with any ordinary means used in making generators, or may be held to a cylindrical generator, with iron bands around each end to hold it, so that it may be calked or otherwise made steam-tight. It is provided with an induction steam-pipe, *a*, which receives the steam from the cylinder, and conveys it into the space between the case and generator, and directs the course of the steam into the case, so as to make a circulation to all parts of the space; also, with an eduction-pipe, *b*, passing from the space to the smoke-pipe when wanted to make draft, or to any other place desired. C is the feed-water pipe, of any length or size required, and it must be wound around the generator in the space, or be placed in it by means of returns and elbows, according to the shape of the space and length of pipe required. Its length must be such that the water will be properly heated before it enters the generator, and it must have a pipe from the water force-pump to the induction. The other end is made to enter the generator at any part preferred.

What I claim as new and my invention is—

The combination, with a generator, A, and feed-water pipe C, surrounding or encircling said generator, of the casing B, provided with induction-pipe *a* and eduction-pipe *b*, adapted to direct the exhaust steam into and from the chamber formed between said generator and said casing, as and for the purposes set forth.

CHARLES HEWINS.

Witnesses:

JOHN L. LEWIS,  
CHARLES KETCHUM.