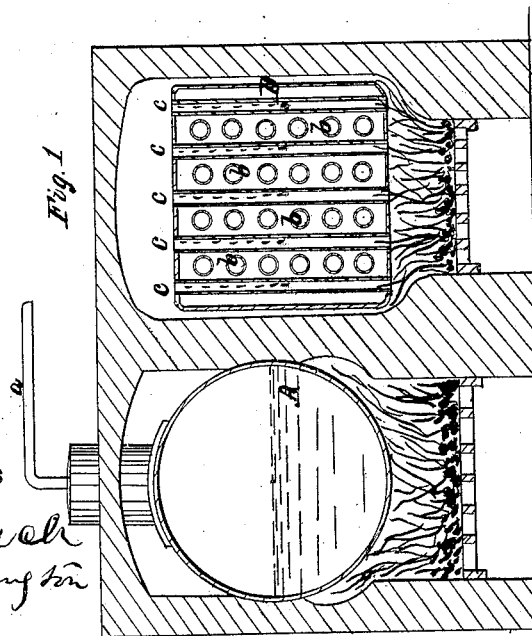
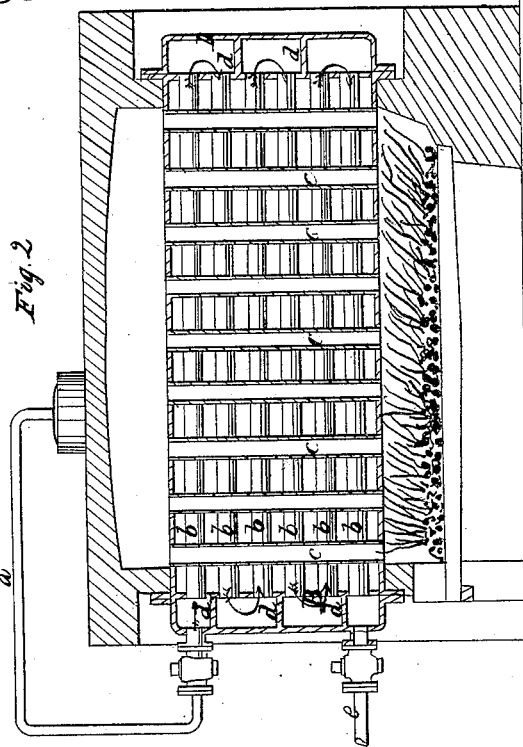


*L. V. Fichet,*  
*Steam-Boiler Superheater.*  
*N<sup>o</sup> 50,346. Patented Oct. 10, 1865.*



*Witnesses*  
*Thos. Lusk*  
*For B. Compt. for*

*Inventor*  
*L. V. Fichet*  
*By M. M. M. M.*

# UNITED STATES PATENT OFFICE.

L. V. FICHET, OF NEW YORK, N. Y.

## IMPROVEMENT IN STEAM-SUPERHEATERS.

Specification forming part of Letters Patent No. 50,346, dated October 10, 1865.

*To all whom it may concern:*

Be it known that I, LEOPOLD V. FICHET, of the city, county, and State of New York, have invented a new and Improved Superheater of Steam; 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 transverse vertical section of this invention. Fig. 2 is a longitudinal vertical section of the same.

Similar letters of reference indicate like parts.

This invention relates to an apparatus in which the steam-generator is passed through a series of horizontal pipes which are arranged in a box that is placed over a furnace and provided with a series of vertical heating-tubes in such a manner that by the heat passing up through said vertical heating-tubes the steam passing through the horizontal pipes is highly heated without exposing the pipes containing the steam to the direct action of the fire. The horizontal steam-pipes passing through the box are so arranged that their ends terminate in different compartments of chambers which form the ends or heads of the box, and by this arrangement the steam is compelled to travel in a zigzag course through the box, and it is exposed to the influence of the heat for a longer time than it would be if made to pass straight through said box.

A represents a steam-generator of any suitable construction. The steam emanating from this generator is passed by means of a pipe, *a*, into a box, B, of cast-iron or any other suitable material. This box is placed over a furnace, C, and it is provided with a series of horizontal pipes, *b*, through which the steam passes, and with a series of vertical tubes, *c*, through which the heat from the fire passes,

which is built on the grate in the furnace C. The horizontal pipes *b* terminate in chambers D, which form the heads or ends of the box B; and these chambers are divided by a series of horizontal partitions, *d*, into a number of compartments, so that the steam is compelled to pass through the first series of pipes, return through the second, and so forth, as indicated by the arrows marked thereon in Fig. 2. While passing through the box B the steam is highly heated, and the influence of the heat is considerably increased by compelling the steam to pass through the pipes *b* in a zigzag course, and this object is obtained without bringing the pipes containing the steam in direct contact with the products of combustion. When drawn from the box B through the discharge-pipe *e* the steam can be used for manufacturing or for heating purposes, or in fact for any purpose whatever. It retains its full pressure, and the pressure is increased by the action of the heat so that it can be used for giving motion to the piston of an engine, if desired.

The apparatus can be made of any desirable size; and it gives the most economical means to superheat steam without producing any injury to the pipes through which the steam passes.

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

An apparatus for superheating steam composed of a box, B, provided with a series of horizontal pipes, *b*, and a series of vertical heating-tubes, *c*, in combination with the furnace C, substantially as herein set forth.

The above specification of my invention signed by me this 14th day of August, 1865.

L. V. FICHET.

Witnesses:

M. M. LIVINGSTON,  
C. L. TOPLIFF.