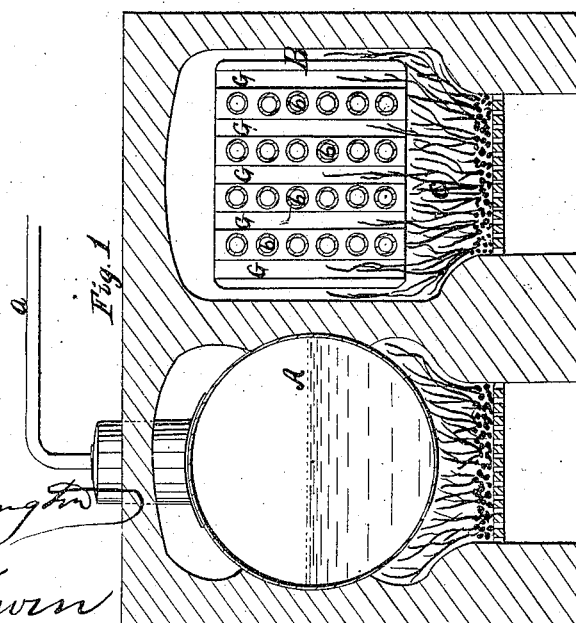
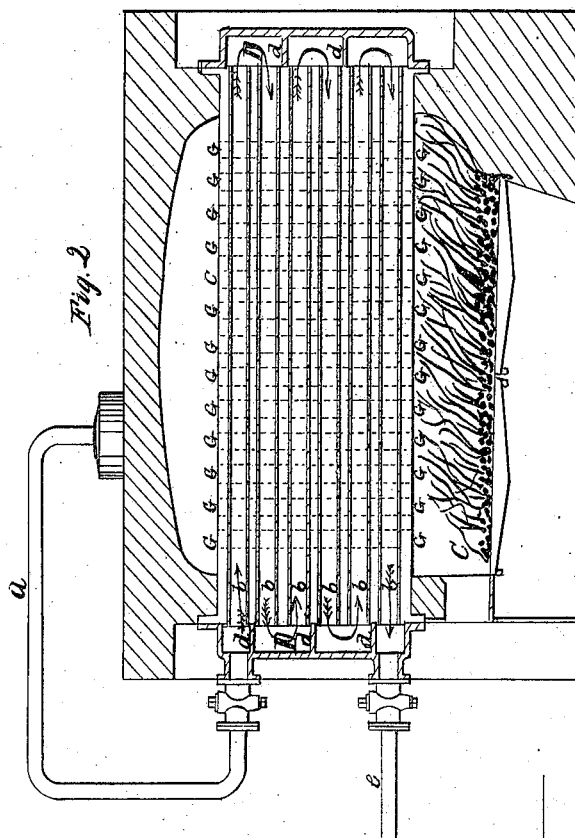


L. V. Fichet,
Steam-Boiler Superheater
N^o 52,982. Patented Mar. 6, 1866.



Witnesses,
J. M. Blount
Wm. Frewin

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UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN STEAM-SUPERHEATERS.

Specification forming part of Letters Patent No. 52,982, dated March 6, 1866.

To all whom it may concern:

Be it known that I, L. V. FICHET, of the city, county, and State of New York, have invented a new and Improved Apparatus for Superheating 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 section of the same.

Similar letters of reference indicate like parts.

This invention relates to an apparatus in which the steam generated in a suitable generator or boiler is passed through a series of passages made in a solid mass of cast-iron or other suitable material, (by preference in a horizontal direction,) said mass being exposed to the heat of a fire and provided with suitable passages, through which the fire circulates in such a manner that by the action of a comparatively small fire the solid mass can be kept in an incandescent state and the steam still passing through the steam-passage is highly heated without producing any injurious effect on the mass through which it passes. The steam-passages passing through the solid mass are so arranged that their ends terminate in different compartments of chambers, which are secured to the ends of said solid mass in such a manner that the steam is compelled to travel in a zigzag course through the solid mass, and is exposed to the influence of the heat for a longer time than it would be if made to pass in a direct course through the steam-passages.

A represents a steam-generator of any suitable construction. The steam emanating from this generator is passed, by means of a pipe, through a series of passages, *b*, in a solid mass, B, of cast-iron or other suitable material. This mass is placed over a furnace, C, and it is provided with a series of vertical passages, *c*, the passages *b* being arranged, by preference, in a horizontal direction. Through the passages *c* pass the heated gases rising from the fire which may be built in the furnace C, and which strikes the solid mass B from all sides, so that the same

can be kept in an incandescent state with a comparatively small expenditure of fuel.

The steam-passages *b* terminate in chambers D, which are secured to the ends of the mass 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 passages, return through the second, and so forth, as indicated by the arrows marked thereon in Fig. 2.

While passing through the passages in the mass B the steam is highly heated and the influence of the heat is considerably increased by compelling the steam to pass through the passages *b* in a zigzag course, and by using a solid mass, B, the injurious influence of the products of combustion and of the superheated steam on the passages is little felt and produces no injurious influence, whereas in an ordinary apparatus, where pipes are used, such pipes are liable to burn out and to cause endless trouble. When drawn from the mass 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 the purpose of giving motion to the piston of an engine.

This apparatus can be made of any desirable size, and it gives the most economical means to superheat steam without producing any possible injury to the incandescent mass through which it passes.

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

1. An apparatus for superheating steam, composed of a mass, B, provided with a series of steam-passages, *b*, and a series of heating-passages, *c*, substantially as and for the purpose described.

2. The chambers D, with partitions *d*, in combination with the solid mass B, substantially as and for the purpose set forth.

The above specification of my invention signed by me this 27th day of December, 1865.

L. V. FICHET.

Witnesses:

W. HAUFF,
ALEX. F. ROBERTS.