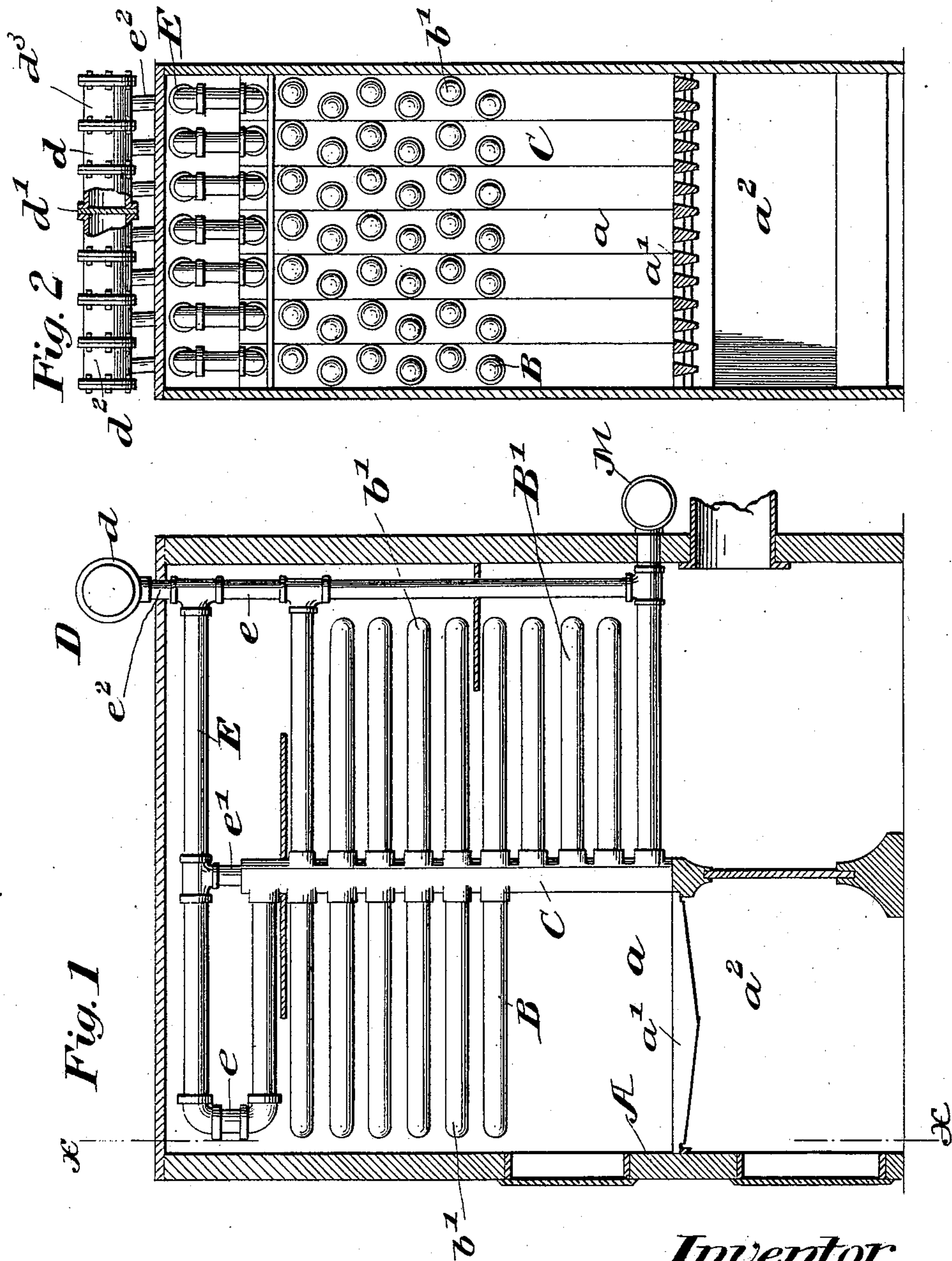


(No Model.)

C. S. HOPKINS.  
WATER TUBE BOILER.

No. 533,064.

Patented Jan. 29, 1895.



Witnesses  
J. B. Caplinger  
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By *Wear Foot*  
Att'y



# UNITED STATES PATENT OFFICE.

CHARLES S. HOPKINS, OF ROCHESTER, NEW YORK.

## WATER-TUBE BOILER.

SPECIFICATION forming part of Letters Patent No. 533,064, dated January 29, 1895.

Application filed May 5, 1894. Serial No. 510,205. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES S. HOPKINS, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Water-Tube Boilers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention contemplates certain new and useful improvements in boilers for steam and hot water heating.

The invention comprises a boiler having a series of central stand pipes arranged close together, side by side, front and rear groups of water tubes extending from said stand pipes, and a header connected with the latter, said header being divided into two sections, one being for steam and the other for hot water heating.

The invention also comprises the details of construction, combination, and arrangement of parts, substantially as hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings:—Figure 1 is a vertical longitudinal sectional view illustrating my improved boiler. Fig. 2 is a transverse sectional view on the line  $x-x$ , Fig. 1.

Referring to the drawings, A designates the casing which may be of any suitable or preferred material;  $a$ , the fire-box;  $a'$ , the grate, and  $a^2$  the ash pit.

B, B' designate the front and rear groups of water tubes which are arranged in series  $b$  and at their inner ends are connected to and communicate with central stand pipes C, the outer ends  $b'$  of said pipes being closed. The series of stand pipes C are arranged closely together side by side, in such manner as to form a dividing wall between the front and rear portions of the boiler casing thus constituting a water back. The water tubes are closed at their outer ends while their inner ends open into the stand pipes.

D designates the header which is composed of a series of sections  $d$  which are bolted together. This header may be divided by a partition  $d'$ , placed between any two sections, into a steam chamber  $d^2$  and a water chamber  $d^3$ .

E designates a series of pipes communicating with the upper tubes of the series B, B' and the stand pipes C by short perpendicular pipes  $e, e'$ , and to the forward ends of these pipes E are connected short perpendicular pipes  $e^2$  communicating with the header. Water is supplied to the central stand pipes from a main M and from thence is distributed to the various water tubes. One portion of the series of front and rear tubes being used for hot-water heating and the other for generating steam, a division is preferably made in the water supply pipe corresponding to the division in the header.

It is obvious from what has been said that by means of my invention one section of my improved boiler may be used for generating steam and the other for hot water heating said sections communicating with the steam and water chambers of the header, respectively, the steam and hot water being produced simultaneously and with the consumption of but a minimum amount of fuel.

I claim as my invention—

1. The herein-described improved boiler, comprising the central series of stand-pipes, arranged close together, side by side, and forming a dividing wall between the front and rear portions of the boiler casing, the tubes opening at their inner ends into said stand-pipes, the header communicating with said tubes and stand-pipes, and the partition therein dividing the same into two chambers, as and for the purpose set forth.

2. The herein-described improved boiler, comprising the series of central stand-pipes arranged close together, side by side, and forming a dividing wall or water back between the front and rear portions of the boiler casing, the front and rear groups of tubes opening at their inner ends into said stand-pipes, said tubes being closed at their outer ends, the header formed in two parts or sections, and the series of pipes connecting said header with said stand-pipes and tubes, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES S. HOPKINS.

Witnesses:

FORREST R. ODELL,  
WM. A. LOCKWOOD.