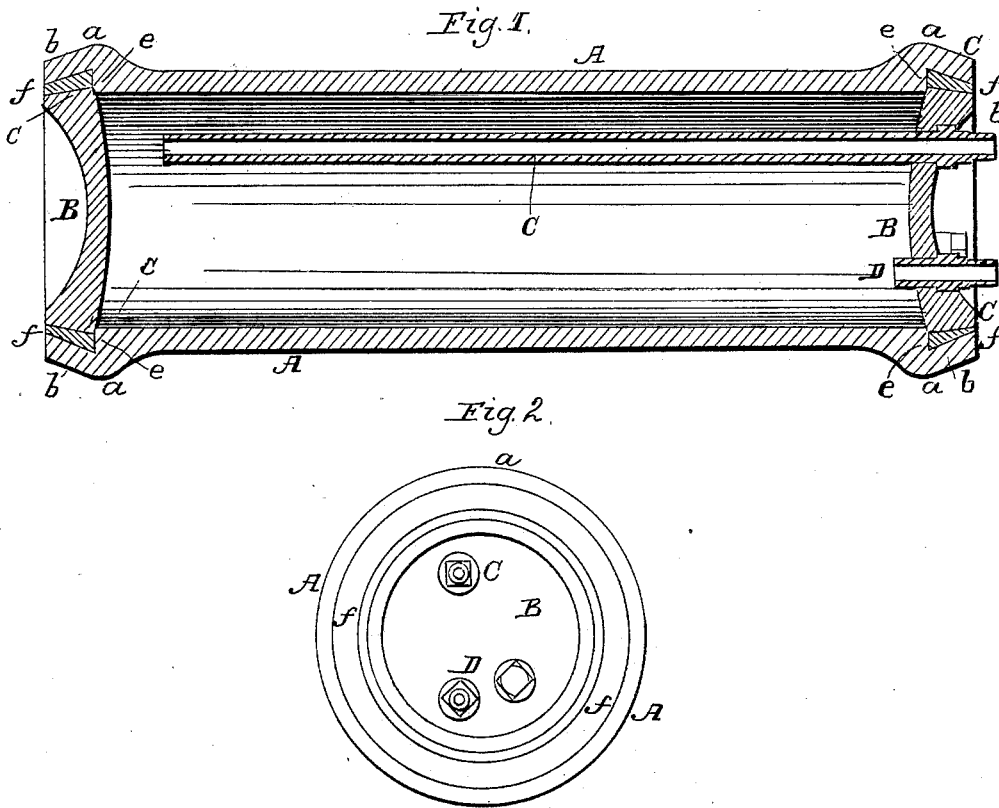


Z. ELLIS.

Boiler for Heating.

No. 45,031.

Patented Nov. 15, 1864.



Witnesses:
H. Albert Smith
Charles E. Foster

Inventor:
Z. Ellis
Henry Howson
Atty

UNITED STATES PATENT OFFICE.

ZABINA ELLIS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVED BOILER FOR HEATING.

Specification forming part of Letters Patent No. 45,031, dated November 15, 1864.

To all whom it may concern:

Be it known that I, ZABINA ELLIS, of Philadelphia, Pennsylvania, have invented an Improvement in Boilers for Heating Purposes; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My improved boiler consists of a hollow cylinder of cast-iron, with a socket at each end and a cast-iron head secured to each socket by a dovetailed packing of lead or other suitable material, as described hereinafter, the whole forming an economical and substantial boiler to be used in connection with ranges, stoves, &c., for heating water for domestic and other purposes.

In order to enable others skilled in the art to make my invention, I will now proceed to describe the manner of constructing the same.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a longitudinal section of my improved boiler for heating purposes, and Fig. 2 an end view of the same.

A represents the body of the boiler, which consists of a hollow cylinder of the same, or about the same, diameter and length as the boilers commonly used in connection with ranges for heating purposes. The ordinary boilers, however, are made of plate-iron, while I employ cast-iron for the sake of economy.

Each end *a* of the cylinder A is enlarged, so that a socket or recess may be formed on the interior for the reception of the cast-iron heads B B. The interior of each socket is beveled inward, as shown at *b*, and the edge *c* of the cast-iron head is likewise beveled, an annular space intervening between the said edge *c* of the head and the interior *b* of the socket for the reception of the lead packing *f*.

It should be understood that the body or cylinder of the boiler is made of raw cast-iron, no turning, boring, or filing being necessary.

After the castings have been prepared, the cylinder is held in a vertical position and one of the heads deposited in the socket which is uppermost, the shoulder *e*, which forms the termination of the socket, preventing the head from falling below the desired point. After this the head is so adjusted that it will occupy a position concentric with the socket, and molten lead is poured into the annular space, so as to dovetail the head to the socket. The cylinder is then reversed, so that the head may be secured to the opposite end in the manner described. Two tubes, C and D, are passed through and secured to one of the heads B, the long tube C for the admission of water to the cylinder, which is exposed to the action of fire, and the short tube for withdrawing the hot water from the cylinder.

When it is considered that no riveting is required, as in the construction of ordinary plate-iron boilers, and that no turning or boring of the heads and sockets is necessary, it will be evident that my improved boiler is more economical than those of ordinary construction.

As regards strength and safety, the cylinder is made of cast-iron of sufficient thickness to withstand any pressure to which it may be subjected, while no ordinary pressure can force the heads from the cylinder, owing to the dovetailed packing *f*.

I claim as my invention and desire to secure by Letters Patent, as a new manufacture—

The boiler consisting of the hollow cast-iron cylinder A, with a socket at each end and a cast-iron head secured to each socket by a dovetailed packing of lead or other suitable material, all as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ZABINA ELLIS.

Witnesses:

A. H. SHOEMAKER,
JAMES F. STILEMAN.