P. LESSON.

Hot-Water Boiler for Ranges.

No. 133,866. Patented Dec. 10, 1872.

Fig. 1.

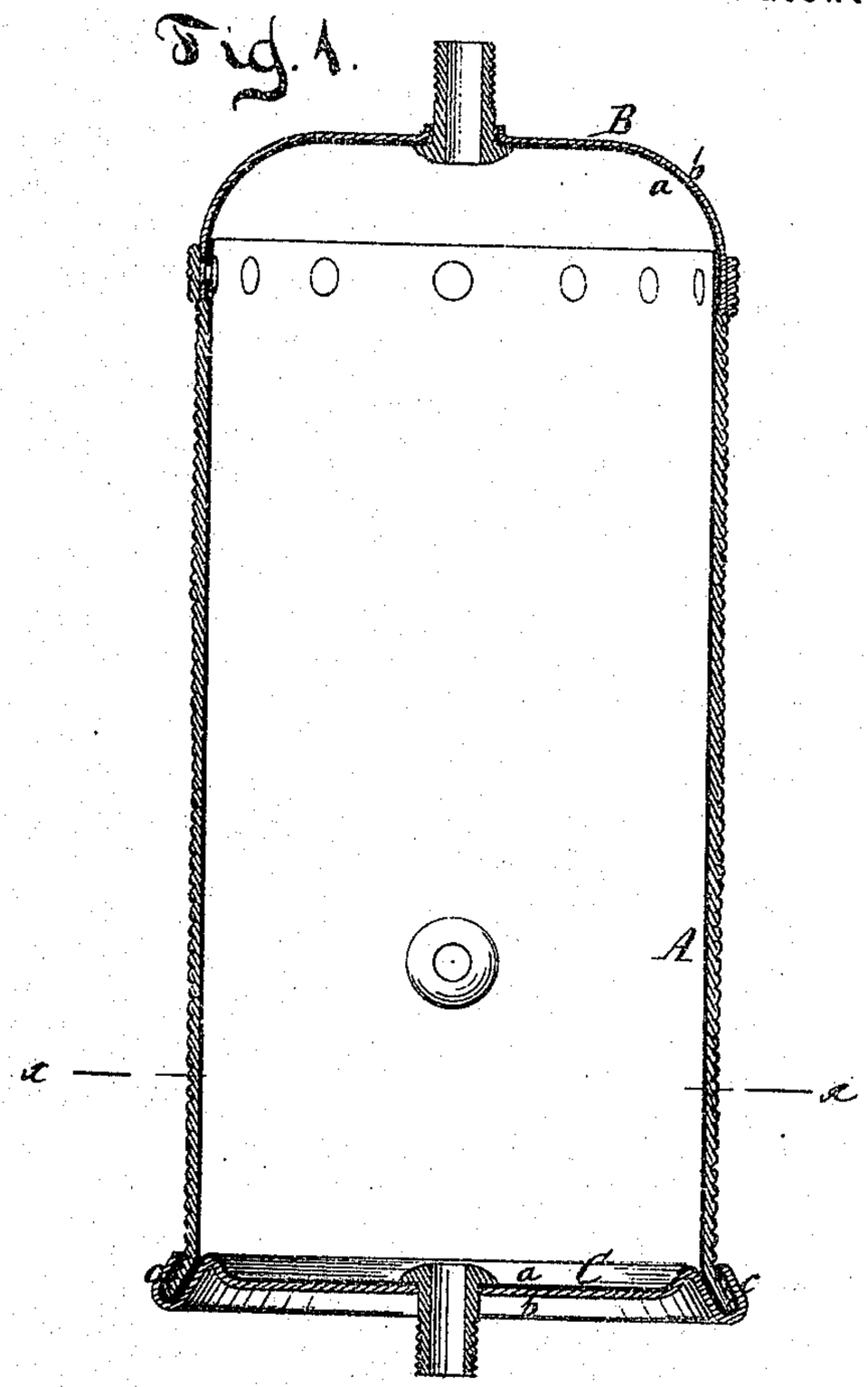
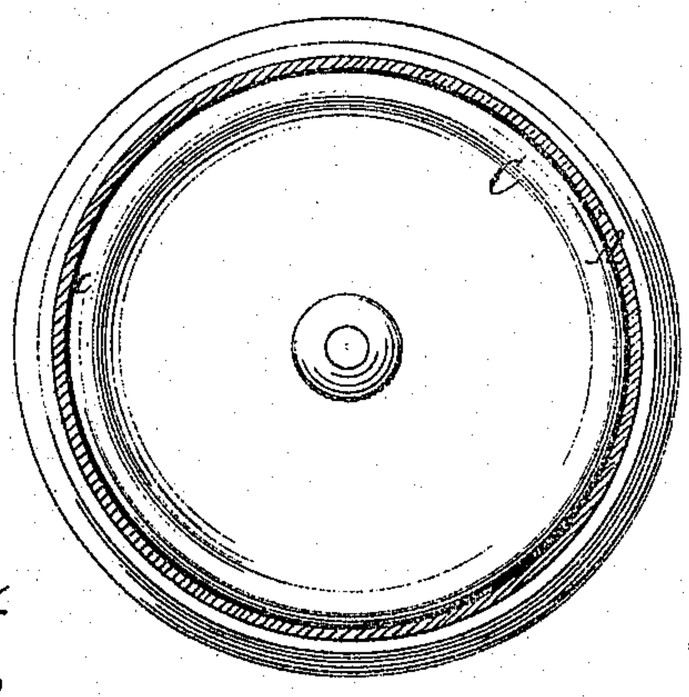


Fig. 2.



Witnesses.
Ernst Bilhuber.
Chas. Wahlers.

Inventor.
Philip Lesson
per
Van Santvoord & Hauff
Attys

UNITED STATES PATENT OFFICE.

PHILIP LESSON, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN HOT-WATER BOILERS FOR RANGES.

Specification forming part of Letters Patent No. **133,866**, dated December 10, 1872.

To all whom it may concern:

Be it known that I, PHILIP LESSON, of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Hot-Water Boilers for Ranges; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a vertical central section of my invention; and Fig. 2 is a horizontal section of the same in the plane *x x*, Fig. 1.

Similar letters indicate corresponding parts.

This invention relates to certain improvements on that class of hot-water boilers which I have described in my patent No. 123,269, dated January 30, 1872, and in which the body of the boiler is made of a thin sheet of copper strengthened by a layer of wire wrapped around the same and attached thereto by solder. My improvement consists in a head and bottom plate for a hot-water boiler for kitchen-ranges, constructed of an inner layer of sheet-copper and an outer layer of sheet-iron, both layers being firmly united and then brought into the required shape in such a manner that with a comparatively thin sheet of copper a head or bottom of great strength can be produced; and, furthermore, in shaping said heads or bottoms dies can be used, while the heads or bottoms made of plain sheets of copper have to be spun upon a turning-lathe in order to impart to the copper the requisite degree of hardness.

In the drawing, the letter A designates the body of my boiler, which is made of a comparatively thin sheet of copper, strengthened by a wire wrapped around it, and to which are secured a head, B, and a bottom plate, C. Each of these parts is made of a thin sheet, *a*, of copper, strengthened by external layer *b* of sheet-iron, the sheet-copper and sheet-iron being firmly united by solder, or in any other desirable manner, and then brought into the desired shape by suitable dies. If the head or bottom is made of sheet-copper alone a heavy sheet of copper must be taken in order to obtain the required strength, and then the sheet-copper is brought in the required shape by spinning it up, since this operation is desirable to impart to the copper sufficient hardness for the occasion.

By using plates or sheets of copper and iron combined I am enabled to reduce the weight of the copper, and also to stamp or strike up the heads and bottoms, instead of spinning, and thereby the cost of the stroke is reduced and much time and labor are saved.

The head B is riveted to the body A, but the bottom C is provided with an annular recess, *c*, to receive the bottom edge of the body A, said recess being inclined outward, as shown in Fig. 1, and after the body has been inserted into the recess of the bottom, and secured in position by means of solder, the boiler is strengthened both against internal and against external pressure.

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

A bottom or top for a hot-water boiler made of a combined sheet of copper and iron, the copper being inside and the iron outside, substantially as shown and described.

PHILIP LESSON.

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.