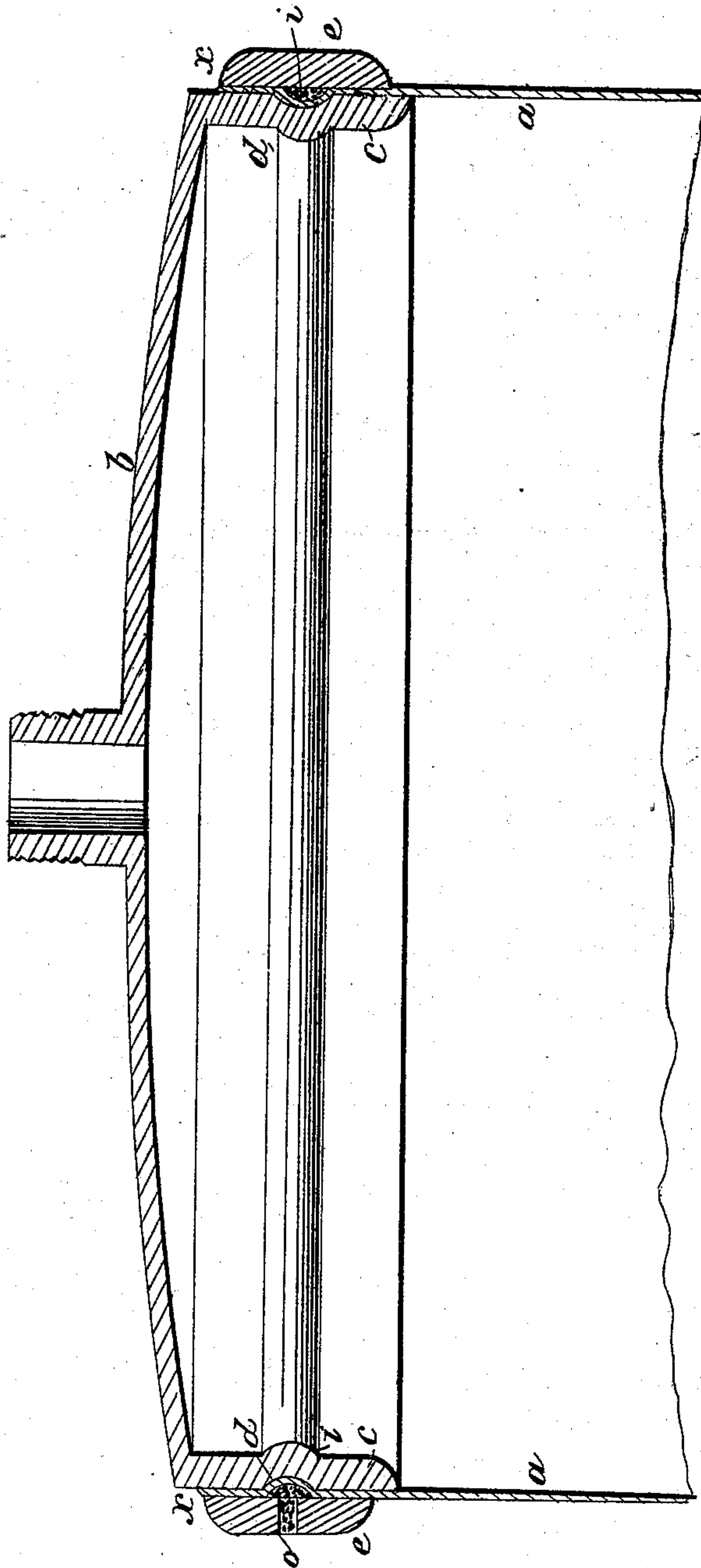


E. HORALEK.
Boiler for Hot Water Apparatus.

No. 31,976.

Patented April 9, 1861.



Witnesses.
Samuel W. Parrell
Chas. H. Smith

Inventor.
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UNITED STATES PATENT OFFICE.

EDWARD HORALEK, OF NEW YORK, N. Y.

IMPROVEMENT IN BOILERS FOR HOT-WATER APPARATUS.

Specification forming part of Letters Patent No. **31,976**, dated April 9, 1861.

To all whom it may concern:

Be it known that I, EDWARD HORALEK, of the city and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Boilers for Hot-Water Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the nature of the said invention, reference being had to the annexed drawing, making part of this specification, wherein I have represented a vertical section of one end showing the manner of fitting the parts.

Hot-water boilers are usually connected with cooking-ranges, where a suitable supply of water is available, so that the aforesaid boiler will be heated by the circulation of water from a water-back in the range. In the construction of these boilers it is usual to provide a sheet-copper cylinder and cast-metal heads, usually of brass or composition, and turn the sheet metal over upon the aforesaid head and solder the parts together. This operation is costly, both on account of the brass or composition end, the solder, and the labor; and besides this the thin sheet metal is exposed to injury, in handling the boiler, at the angle formed in dressing said cylinder over the edge of the head.

The nature of my said invention consists in the employment of a cast-metal head provided with a grooved flange receiving the ends of the sheet-copper casing, into which groove the said sheet metal is dressed and the whole secured by a wrought-iron band shrunk around the said casing and flange.

In the drawing, *a* is a casing or cylinder of sheet-copper or other metal, the same being of the desired length for the boiler and provided with a head at each end. I have only represented a portion of this casing *a* in the drawing and only one of the heads.

b is the cast-metal head, which should be of iron, as being cheaper than brass or composition, and better adapted to the purpose.

c is a flange surrounding the edge of the head and corresponding in size with the internal diameter of the cylinder *a*.

d is a groove cast or formed in the flange *c*.

After the head *b* and flange *c* have been inserted at the end of the casing *a* said metal is to be hammered or dressed down into the groove *d*, which causes the said head and casing to become permanently connected. I then apply the ring *e*, of wrought-iron, in a heated state around the end of said casing *a* and flange *c*, and by the shrinkage of said ring in cooling bind the casing and flange immovably together. The end of the copper casing can be calked, as at *x x*, and, if desired, a hole can be provided, as at *o*, in the ring *e*, and the groove in the casing *a* filled with lead or other melted metal, as at *i*, which effectually prevents the metal from being compressed and the head *b* sliding out from the pressure within. This mode of construction is not only much cheaper than that heretofore adopted, but provides a means whereby the head and cylinder can be more easily separated for repairs, as often necessary, from the splitting of the casing by frost.

The nipples, now usual for attaching the pipes to the boiler, are to be provided in the side and ends or heads, as now applied.

If the cast-iron head is objectionable under any circumstances on account of rust, the same may be lined with sheet-lead or equivalent material; and boilers constructed in this manner may be applied to any purpose, although especially adapted to hot-water apparatus.

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

The cast-metal head *b* and flange *c* provided with the groove *d*, receiving the metallic cylinder or casing *a*, combined with the wrought-iron ring *e*, shrunk on, for the purposes and as specified.

In witness whereof I have hereunto set my signature this 9th day of February, 1861.

EDWARD HORALEK.

Witnesses:

LEMUEL W. SERRELL,
CHAS. H. SMITH.