P. Wineman,

Steam-Boiler Flue.

No. 66,435. Patented July 2, 1867.

Fig. 2

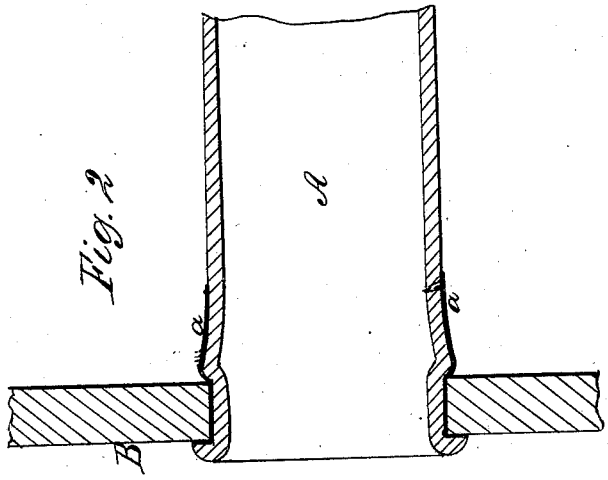
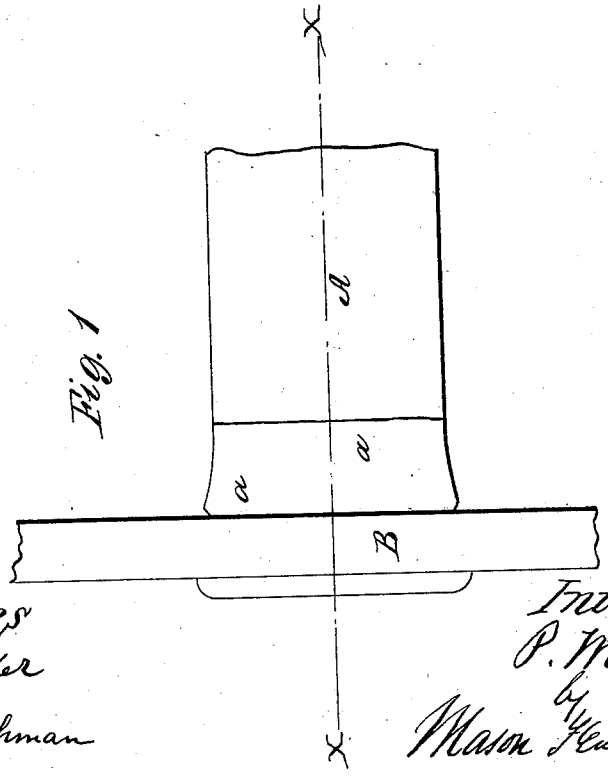


Fig. 1



Witnesses
Edw. Schaefer
Walter Hinchman

Inventor;
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by
Mason Fenwick & Lawrence

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United States Patent Office.

PARKER WINEMAN, OF MINOOKA, ILLINOIS.

Letters Patent No. 66,435, *dated July* 2, 1867

IMPROVED MODE OF PREVENTING CORROSION AT THE JOINTS OF STEAM-BOILER FLUES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, PARKER WINEMAN, of Minooka, in the county of Grundy, and State of Illinois, have invented an Improvement in Steam-Boiler Flues; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a side view, showing one end of the improved flue applied to a section of flue sheet.

Figure 2 is a vertical section through the same.

Similar letters of reference indicate corresponding parts in both figures.

The object of this invention is to prevent leakage of boilers at the junctions of the flues or tubes with the flue-sheets, by coating or covering the ends of the flues, at those points where they pass through the flue-sheets, with a substance which is less corrodible than the metal of which the flues are made, thereby obviating the rapid destruction of the joints, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings I have represented one end of a tube or flue, A, secured to a tube-sheet, B, in the usual manner, well known, and coated on its external surface so as to prevent it from readily rusting and exposing the joint. I shall not confine my invention to any particular mode of riveting or securing the tubes to the sheets, as any of the well-known modes may be adopted. I prefer, however, to adopt the plan shown, on account of its simplicity, and, with my improvement applied to the tubes, their durability. The tubes A being cut the proper length and prepared ready for inserting into a steam boiler, they are set upright in a vat or vessel containing a strong solution of the sulphate of copper, with their ends immersed therein. Then, by means of the voltaic current which is produced by the well-known electrotype process, the copper held in the solution will be deposited upon the ends of the tubes, so as to completely cover them, and prevent the surfaces of these coated ends from being exposed to the action of the water in the boiler. This coating or covering of the ends of the tubes is indicated at *a a* in the drawings, where it will be seen that it passes through the hole which is made through the tube-sheet B, and is in contact with the inner edge of this hole. The metal of which the tube is made is not exposed to the action of the water in the boiler at the joint, and, consequently, it will not rust at such point and produce leakage.

I have described the use of copper as a coating for the ends of the tubes as one practical mode of carrying my invention into effect; but I do not confine my invention to copper, as other metals, having a less affinity for oxygen, may be used to form the coating. I am aware that copper sleeves have been applied on the outside of boiler tubes at the extremities in forming the joints, and therefore I do not make a claim broadly to covering the ends of boiler flues with plates or sleeves of copper. By my invention, the copper or other substance employed is firmly united to the metal of the tubes, so that perfect joints can be produced at a trifling cost, and with much less metal than is required when separate sleeves are used, as in the old method. I have but one joint at each end of a flue, while there are two joints where separate sleeves are employed.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A boiler tube or flue, having its end or ends coated or covered with a metal which is less corrodible than the metal of which the tube or flue is made, substantially as described.

PARKER WINEMAN.

Witnesses:

LEANDER SMITH,

H. M. THAYER.