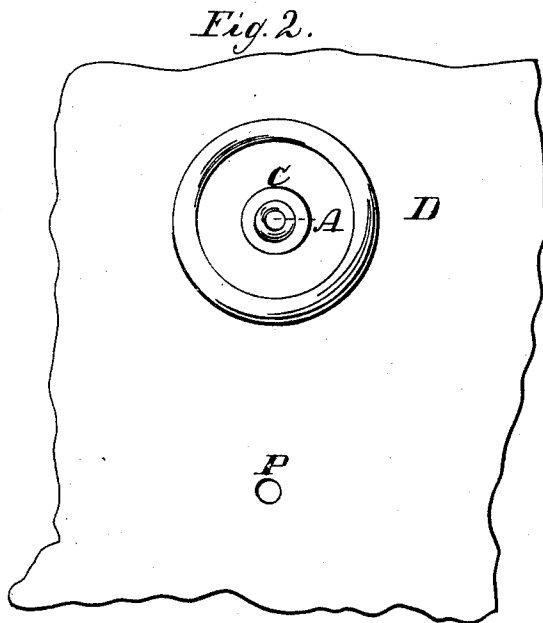
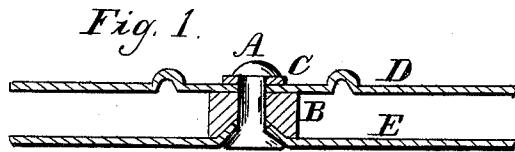


E. BOURNE.

Rivet.

No. 86,726.

Patented Feb. 9, 1869.



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# United States Patent Office.

EDWARD BOURNE, OF PITTSBURG, PENNSYLVANIA.

Letters Patent No. 86,726, dated February 9, 1869.

## IMPROVEMENT IN RIVETS.

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, EDWARD BOURNE, of Pittsburg, in the county of Allegheny, and State of Pennsylvania, have invented a new and useful Improvement in the Construction of Sheet-Iron Radiators, such as are used for the purpose of warming dwellings by the heating-power of steam; and I hereby declare that the following is a full, clear, and exact description of my invention, reference being had to the accompanying drawings, forming part of this specification, and to the letters of reference marked thereon.

The invention I have made consists in uniting the thin metallic sheets, composing the radiator, by passing conical-headed rivets transversely, at regular intervals, through the sheets, and through metallic washers placed between them, each washer having a hole through it for that purpose, corresponding in shape to that of the rivet-head, so that, in forcing up the rivets, by hammering or otherwise, that portion of the sheet next the head of each rivet, and immediately surrounding it, will be drawn into the conical opening of the washer, thereby stiffening the sheet, and making a perfectly steam-tight joint.

To enable others skilled in the art of making this class of radiators, to understand and put in practice my invention, I will proceed to describe it by reference to the accompanying drawings, wherein—

Figure 1 represents a transverse section of a couple of thin iron plates, united in accordance with my plan, and exhibits the rivet and washers used for that purpose.

Figure 2 represents a top view of the upper plate.

Figure 3 represents an ordinary small flat washer.

Figure 4, conical-headed rivet.

Figure 5, deep washer, with conical hole through it.

To construct a sheet-metal radiator, I take two thin sheets of good iron, and punch small round holes, P, through them, just the size of the body of the intended rivet.

This rivet, A, is provided with a large conical head, which is to be inserted in the lower sheet, E. Over this rivet A, I place a deep washer, B, having a funnel-shaped opening through it, with the largest part of the opening down, or toward the head of the rivet.

I then, by means of a "set-punch," placed over the rivet, force the washer B down, which act draws the head of the rivet A into the conical or funnel-shaped opening in the washer B, taking with it a portion of the sheet E, immediately surrounding the head, as seen at fig. 1.

As soon as this is done, I place over the rivet another sheet, D, and then a small ordinary washer, C, and burr the rivet in the usual manner.

The object of this contrivance is to stiffen the lower sheet E, by raising the sheet around each rivet out of the line of its plane, and also to give a greater bearing around the head of the rivet, to insure a steam-tight joint.

Having briefly described my invention,

I claim uniting the thin sheets of metallic radiators by means of conical-headed rivets, used in combination with funnel-shaped washers, in such a manner as to draw that portion of the sheet next the rivet-head into the washer, substantially in the way herein shown and set forth.

EDWARD BOURNE.

Witnesses:

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