

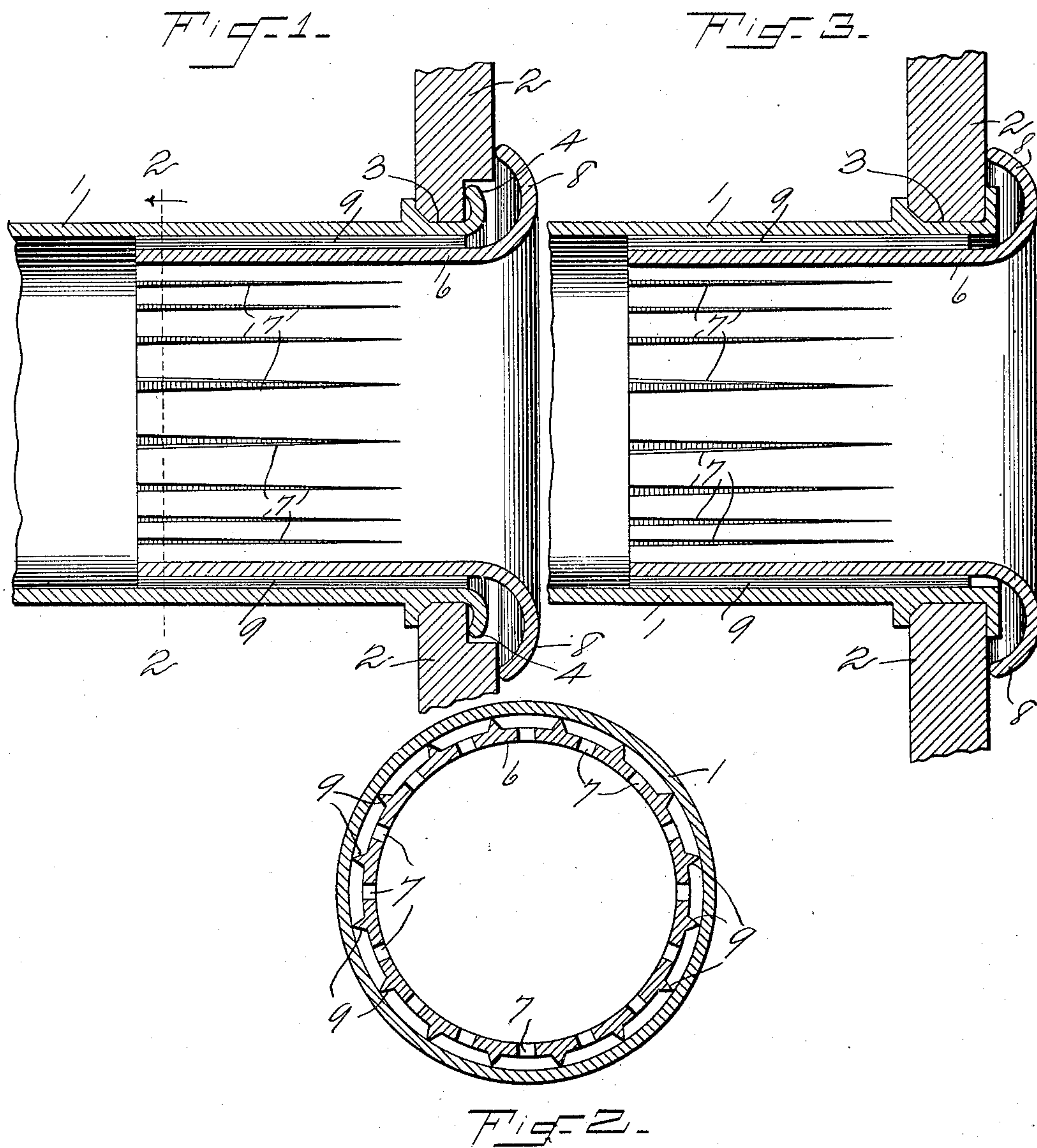
No. 756,429.

PATENTED APR. 5, 1904.

F. STRATTNER.
BOILER TUBE JOINT.

APPLICATION FILED MAR. 19, 1903.

NO MODEL.



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FREDERICK STRATTNER, OF SALISBURY, MARYLAND.

BOILER-TUBE JOINT.

SPECIFICATION forming part of Letters Patent No. 756,429, dated April 5, 1904.

Application filed March 19, 1903. Serial No. 148,628. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK STRATTNER, a citizen of the United States, residing at Salisbury, in the county of Wicomico and State of Maryland, have invented certain new and useful Improvements in Boiler-Tube Joints; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in boiler-tube joints.

The object is to form a boiler tube or flue joint and to provide devices for protecting the same from the intense heat at this point.

A further object is to provide protecting devices which can be applied to flues of various sizes and which will be simple, strong, and durable and well adapted to the use for which they are designed.

With these and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be more fully described, and particularly pointed out in the appended claim.

In the drawings, Figure 1 is a longitudinal sectional view through a boiler tube or flue and a portion of a tube-sheet. Fig. 2 is a cross-sectional view on the line 2 2 of Fig. 1. Fig. 3 is a similar view to Fig. 1, showing a modified form of joint.

In the drawings, 1 denotes the tube or flue of a fire-tube boiler.

2 denotes the tube-sheet.

3 denotes the bore of the tube-sheet through which the end of the tube or flue is inserted. The bore 3 on the fire-box side of the sheet 2 is provided with an annular enlargement or countersink 4, into which the end of the tube or flue 1 is turned or upset. The edge of the bore 3 on the boiler side of the tube-sheet is beveled off to accommodate the beveled edge of an annular collar 5, formed on the tube or flue 2, and against which said collar is drawn when the end of the flue is turned or upset in the countersink 4, thus making a doubly-sealed water-tight joint.

6 denotes a thimble or ferrule, the inner end of which is provided with a series of V-shaped notches or slits 7 and the outer end of which is

provided with an annular outwardly-turned curved flange 8. The outer surface of the thimble has formed thereon an annular series of longitudinally-disposed ribs or bars 9. In practice the slitted end of the thimble is inserted in the end of a tube and the thimble driven in until the edge of the inwardly-turned flange 8 engages the face of the tube-sheet, the upset end of the tube or flue and the countersink 4 being entirely covered by the flange 8 and protected from the intense heat of the furnace. In driving in the thimble the slits 7 therein will permit the same to accommodate itself to the size of the tube, while the ribs 9 on the thimble are adapted to hold the body of the thimble away from contact with tube, leaving a space between the thimble and the tube, which space is continued throughout the length of the thimble and between the turned end of the flue and the flange 8. This space immediately fills up with cinders, soot, dust, &c., from the fire and forms between the thimble and the end of the flue a protective lining or packing which will effectually prevent the burning out and leaking of the tubes at this point, as so frequently occurs in fire-tube boilers, and thereby putting out the fires.

It will be observed by reference to Figs. 1 and 3 of the drawings that the outturned curved flange 8 of the thimble is of such width as to form an annular chamber around the end of the boiler-tube and that the said flange is at all points entirely out of contact with the end of the boiler-tube and that this annular chamber communicates with the spaces formed between the ribs 9 of the thimble and the boiler-tube, so that this annular chamber also becomes filled with cinders, soot, and the like, which effectually protects the end of the boiler-tube and that portion of the sheet immediately approximate thereto.

In Fig. 3 of the drawings is shown a modified form of joint. In this instance the bores of the tube-sheet are not countersunk and the end of tubes or flues are turned or upset upon the face of the sheet. The construction and application of the thimble is the same, however, as in the former figures, the flange 8 of the thimble covering and protecting the end of the tube in the same manner as before.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

In combination with a boiler-sheet having an opening, and a boiler-tube having one end disposed in said opening, a thimble in said end of the boiler-tube having exteriorly and

longitudinally disposed ribs forming spaces between the boiler-tube and the thimble, the latter being further provided at its outer end with an outturned flange forming an annular chamber between it and the end of the boiler-tube, the said chamber communicating with the spaces formed by the ribs of the thimble, for the purpose set forth, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FREDERICK STRATTNER.

Witnesses:

PAUL E. WATSON,
CHAS. L. BOURNE.