

No. 749,210.

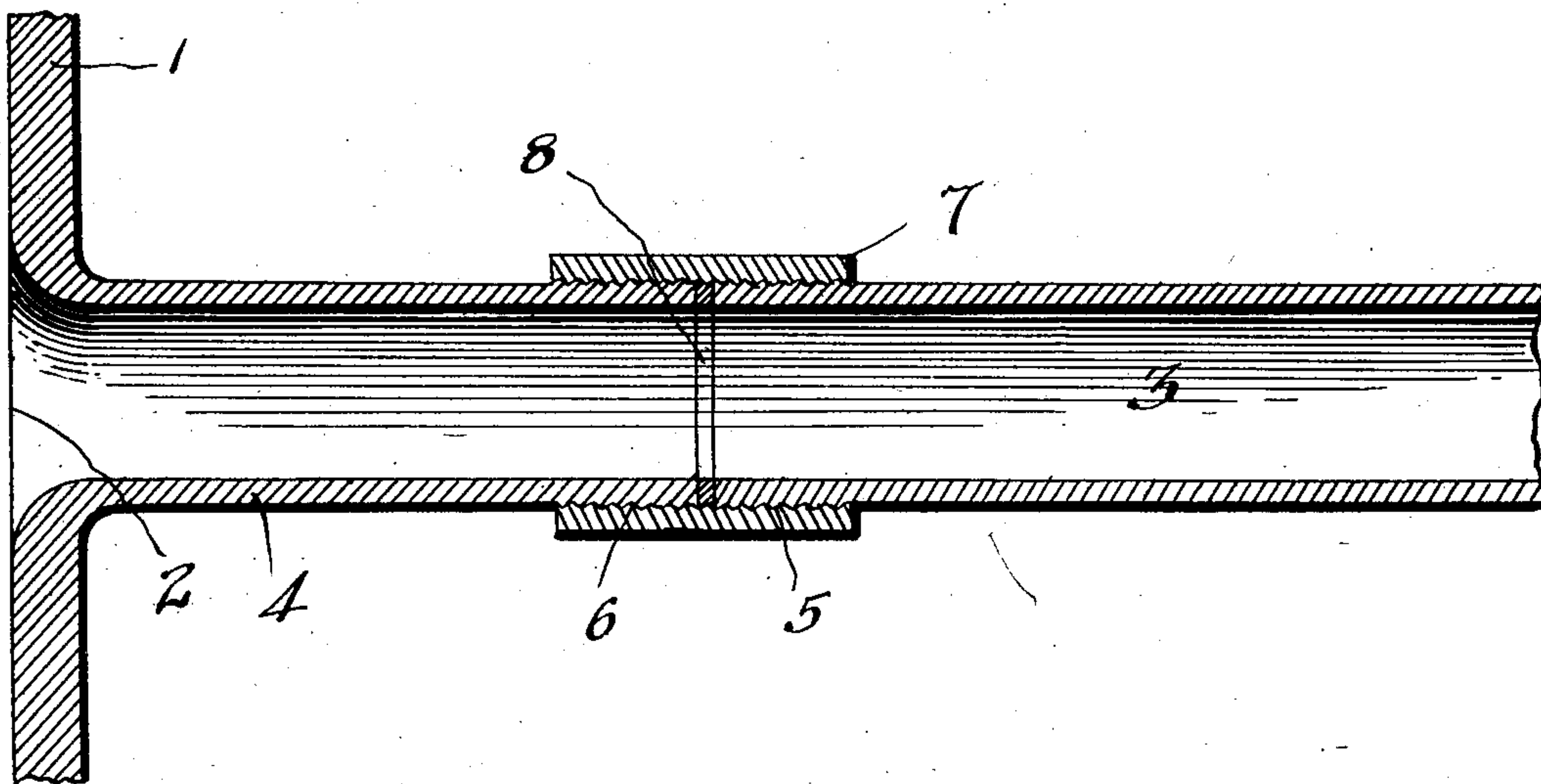
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M. M. MASSEY & G. SPOONER.

FASTENING FOR TUBES OR STAY BOLTS FOR STEAM BOILERS.

APPLICATION FILED FEB. 12, 1903.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

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FASTENING FOR TUBES OR STAY-BOLTS FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 749,210, dated January 12, 1904.

Application filed February 12, 1903. Serial No. 143,067. (No model.)

To all whom it may concern:

Be it known that we, MADISON M. MASSEY and GEORGE SPOONER, citizens of the United States, residing at Cloudcroft, in the county of Otero and Territory of New Mexico, have invented certain new and useful Improvements in Fastenings for Tubes or Stay-Bolts of Steam-Boilers; and we 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 means for connecting the stay-bolts and fire-tubes of steam-boilers to the crown and tube sheets.

The object of the invention is to provide a simple and efficient construction of connection wherein the joint or splice is formed upon the water side of the sheet, thus obviating the necessity of projecting the bolts or tubes through the sheet, and consequently preventing the ends of the bolts and tubes from being exposed to the direct action of the flames in the fire-box and becoming crystallized or burned out. The construction also prevents undue expansion and contraction and leakage at the joint.

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

The figure of the drawing shows the application of the invention to a tube and tube-sheet, the parts appearing in section.

Referring now more particularly to the drawing, 1 represents a portion of a tube-sheet which is provided with an opening 2, through which the gases from the fire-box enter the tube 3. Surrounding the opening 2 is a nipple 4, which projects inwardly or from the water side of the tube-sheet and is preferably formed by displacing a portion of the sheet in forming the opening 2 and projecting such portion inwardly. The contiguous ends of the tube 3

and nipple 4 are exteriorly screw-threaded, as shown at 5 and 6, for engagement with a splice-sleeve 7, which couples the parts together. A gasket-ring 8, preferably of metal, is arranged between the ends of the tube and nipple to form a steam and water tight joint and is clamped in position by the drawing of the parts together by said sleeve. The same construction may be employed for securing a stay-bolt instead of the tube to the tube-sheet or to a crown-sheet.

It will be seen that by projecting the nipple 4 inwardly and connecting the end of the tube or stay-bolt thereto the necessity of projecting said tube or bolt through the sheet and into the fire-box for connection with the coupling means is avoided, thus preventing the tube or bolt from being subjected to the direct action of the flames in the fire-box and becoming crystallized or burned out. This arrangement also is advantageous in preventing undue expansion and contraction of the joints, as the joint is maintained in a comparatively cool state by the water in the boiler and prevented from being unduly heated by the gases.

From the foregoing description, taken in connection with the accompanying drawing, the construction, operation, and advantages of our invention will be readily apparent, it is thought, 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 the invention.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

A boiler-tube sheet having an opening, and a tubular nipple formed from the material surrounding the opening and extending inwardly from the water side of the sheet, a boiler-tube in line and corresponding in diameter with the tubular nipple, the latter and the tube being

externally screw-threaded, a refractory coupling-sleeve screwed on the meeting ends of the tubular nipple and boiler-tube and drawing and securing them together, and a gasket-ring
5 compressed between the meeting ends of the nipple and tube, and disposed within the coupling-sleeve, substantially as described.

In testimony whereof we have hereunto set

our hands in presence of two subscribing witnesses.

MADISON M. MASSEY.
GEORGE SPOONER.

Witnesses:

HARRY W. MOORE,
HENRY M. DENNEY.