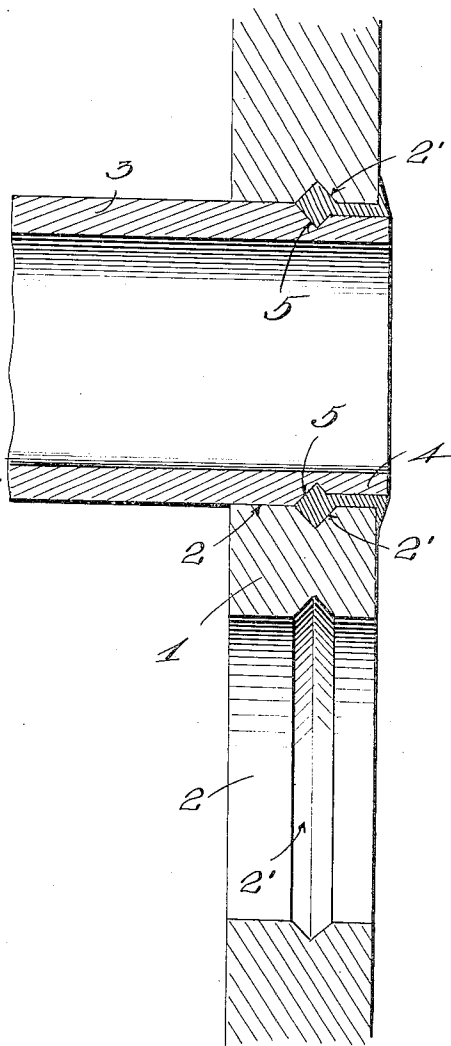


D. B. HINES.
BOILER FLUE CONNECTION.
APPLICATION FILED SEPT. 28, 1908.

920,743.

Patented May 4, 1909.



Witnesses

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UNITED STATES PATENT OFFICE.

DANIEL B. HINES, OF NORFOLK, NEBRASKA.

BOILER-FLUE CONNECTION.

No. 920,743.

Specification of Letters Patent.

Patented May 4, 1909.

Application filed September 28, 1908. Serial No. 455,116.

To all whom it may concern:

Be it known that I, DANIEL B. HINES, a citizen of the United States, residing at Norfolk, in the county of Madison and State of Nebraska, have invented certain new and useful Improvements in Boiler-Flue Connections; 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 contemplates the formation of a flue joint for steam boilers that will be proof against expansion of the metals and permanently lock the flue to the boiler.

With this 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 claims, and in the accompanying drawings, in which,

Figure 1 is a sectional view showing the manner in which my improved flue joint is formed.

Corresponding parts are indicated in the drawings and referred to in the following description by similar reference characters.

In the drawings, numeral 1 designates a boiler plate formed with an opening 2 which extends from the outer face of the boiler plate inwardly and is concentrically enlarged at a point intermediate of the outer face and inner face of the boiler plate said enlargement forming a locking groove in the boiler plate 1. 3 designates a flue which normally is adapted to contact with the boiler plate formed with a reduced end 4 and a peripheral groove 5, said groove being arranged to occupy a position adjacent or opposite to the concentric enlargement of the opening 2 the reduced end which is approximately equal in length to one-half the thickness of the boiler plate is held spaced apart from the boiler plate to allow the entrance of the welding or brazing material by the operation of the flue contacting with the boiler plate. When inserted in the boiler plate, the inner end of the flue 3 is adapted to project beyond the inner face of the boiler plate and when so inserted, the reduced end of the flue is brazed or welded to the boiler plate by placing a suitable brazing or welding metal in the space formed between the reduced end of the flue and the boiler plate so as to fill

the concentrically enlarged portion of opening 2 and in the peripheral groove of flue 3 and said space and applying intense heat thereto such as may be produced by means of an oxygen-acetylene burner or electric arc. The locking groove of the boiler plate 1 is preferably formed V-shaped in cross section so that said groove will more securely hold welding or brazing material and the peripheral groove 5 is also formed V-shaped in cross section. The joint formed by my improved process will resist the pressure of steam and out-last the boiler on which it is formed. The brazing or welding metal for connecting the flue to the boiler plate extends on an incline upon the outer face of the plate to the end of the flue to form a flange for protecting the connection between the flue and the boiler plate.

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 as defined in the appended claims.

Having thus described and ascertained the nature of my invention, what I claim as new and desire to secure by Letters-Patent, is:—

1. A boiler flue connection comprising a boiler plate having an opening formed therein for the reception of a boiler flue end, said opening being concentrically enlarged to form a locking groove in the boiler plate, a boiler flue having its end reduced and formed with a peripheral groove adapted to register with the locking groove of the boiler plate, and means for welding or brazing the boiler flue end to the boiler plate disposed in the grooves of said flue and plate and between the reduced end of the flue and the adjacent portion of the plate.

2. A boiler flue connection comprising a boiler plate formed with an opening for the reception of the boiler flue end, said opening being concentrically enlarged to form a locking groove in said plate intermediate of the faces thereof, a boiler flue having a reduced end fitted tightly in the plate opening with the reduced end spaced apart from the plate

so as to form a space for the entrance of welding or brazing material, said flue being formed with a peripheral groove adapted to register with the locking groove of the boiler plate, and means for welding or brazing the flue end to the boiler plate disposed in the grooves of said flue and plate and in the space between the reduced end of the flue and the adjacent portion of the plate.

3. A boiler flue connection comprising a boiler plate having an opening for the reception of the boiler flue end, and a concentric groove formed therein and disposed intermediate of the faces of the plate, a boiler flue having an end reduced and formed with a peripheral groove adapted to register with the groove of the boiler plate, said plate

groove and said flue groove being formed V-shaped in cross section, and means for welding or brazing the flue end to the boiler plate disposed in the grooves of said flue and plate and between the reduced end of the flue and adjacent portion of the plate, and overlapping the face of said plate so as to form a protecting flange for the flue and plate connection.

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

DANIEL B. HINES.

Witnesses:

CHAS. S. EVANS,
GLEN W. CUMMINGS.