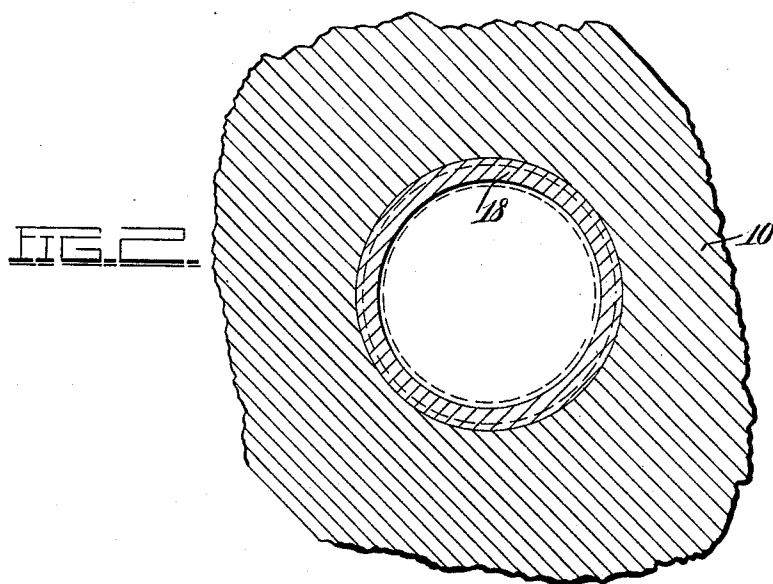
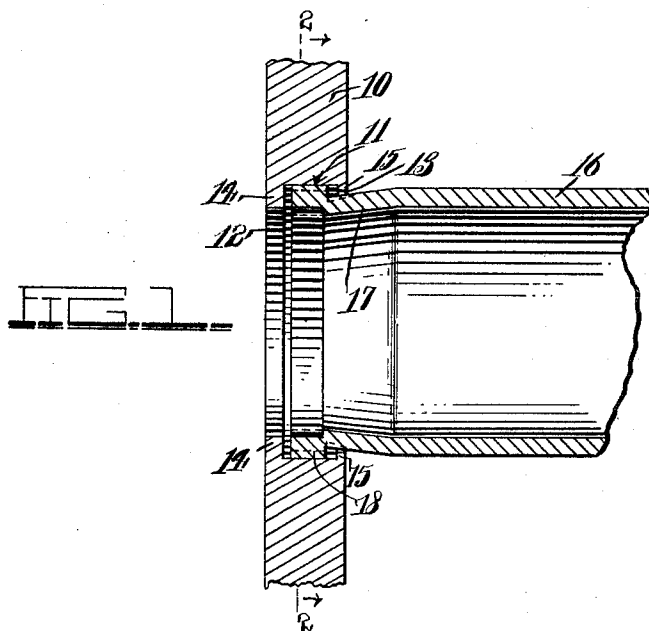


J. WORKMAN.
FLUE SHEET.
APPLICATION FILED NOV. 17, 1910.

1,005,760.

Patented Oct. 10, 1911.



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UNITED STATES PATENT OFFICE.

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SILAS D. TALIOFARRO, OF SALEM, VIRGINIA.

FLUE-SHEET.

1,005,760.

Specification of Letters Patent.

Patented Oct. 10, 1911.

Application filed November 17, 1910. Serial No. 592,879.

To all whom it may concern:

Be it known that I, JOSHUA WORKMAN, a citizen of the United States, residing at Fort Gay, in the county of Wayne, State of West Virginia, have invented certain new and useful Improvements in Flue-Sheets; and I do hereby 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 boilers more particularly to joints between the flue sheets and flues of boilers.

The present invention contemplates the provision of flexible joints between the flues and flue sheets that will permit of the flues expanding and contracting without leakage through the flue sheets.

In ordinary boiler construction each flue is secured in the flue sheet by a flange on the fire side and bead on the water side. The beads due to expansion and contraction of the flues become mutilated to such an extent as to permit of leakage through the flue sheets.

The present invention aims to remedy this disadvantage by providing each flue with a flange which is expanded into a groove in the flue sheet, the sides of the groove permitting expansion and contraction of the flue while the flange of the flue by fitting snugly against the floor of the groove positively prevents leakage.

With the above objects in view the invention consists of the novel details of construction and combination of parts hereinafter fully described and claimed, it being understood that various modifications may be made in the minor details of construction within the scope of the appended claim.

In the accompanying drawing forming part of this specification, Figure 1 is a longitudinal sectional view through a flue sheet and flue secured thereto, the initial position of the flue flange before expansion being shown in dotted lines. Fig. 2 is a cross sectional view taken on the line 2—2

Fig. 1 with the flue flange shown in final position and dotted in initial position.

Referring now to the drawing in which like characters of reference designate similar parts in the various views, 10 designates a flue sheet the same being provided with an internal circular groove 11, a circular opening 12 being formed in the front face of the sheet and communicating with this groove, and a circular opening 13 being formed in the rear face of the sheet and communicating with the groove, the opening 13 being of greater diameter than the first named opening. By this construction flanges 14 and 15 are formed, the flange 15 on the rear face of the sheet being of less height from the floor of the groove than the flange 14 on the front face of the sheet.

The flue 16 is provided with a uniformly reduced end 17 which terminates at its extremity in a circumferential flange 18, this flange being sufficient in cross diameter to be passed through the flange 13 and into the groove 11 of the flue sheet, and is less in thickness than the width of the groove 11.

In assembling the parts, the flue is passed through the flange 13 and into the groove, and then expanded in any preferred manner so as to snugly fit against the floor of the groove in the flue sheet, in expanded position. By virtue of the flue flange being less in thickness than the width of the groove floor, there exists a clearance space between the flanges 14 and 15 of the flue sheet to permit of contraction and expansion of the flue. By virtue of the flue flange snugly fitting against the floor of the groove in the flue sheet leakage between the sheet and flue will be positively prevented in all the various positions occupied by the flue flange during expansion and contraction of the flue.

What is claimed, is:—

A flue sheet having an internal endless groove, an opening being formed in the front face of the sheet communicating with the groove, and an opening being formed in the rear face of the sheet communicating with the groove and of less diameter than

the first named opening, with resultant flanges on opposite sides of the groove of unequal height from the floor of the groove, in combination with a flue having an end
5 passed through the opening in the rear face of the sheet and provided with a flange of a shape and size to slidingly fit in said groove and be limited in movement by said flanges

during expansion and contraction of said flue.

In testimony whereof, I affix my signature, in presence of two witnesses.

10

JOSHUA WORKMAN.

Witnesses:

MARTHA J. WORKMAN,
ZULU DAMRON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."