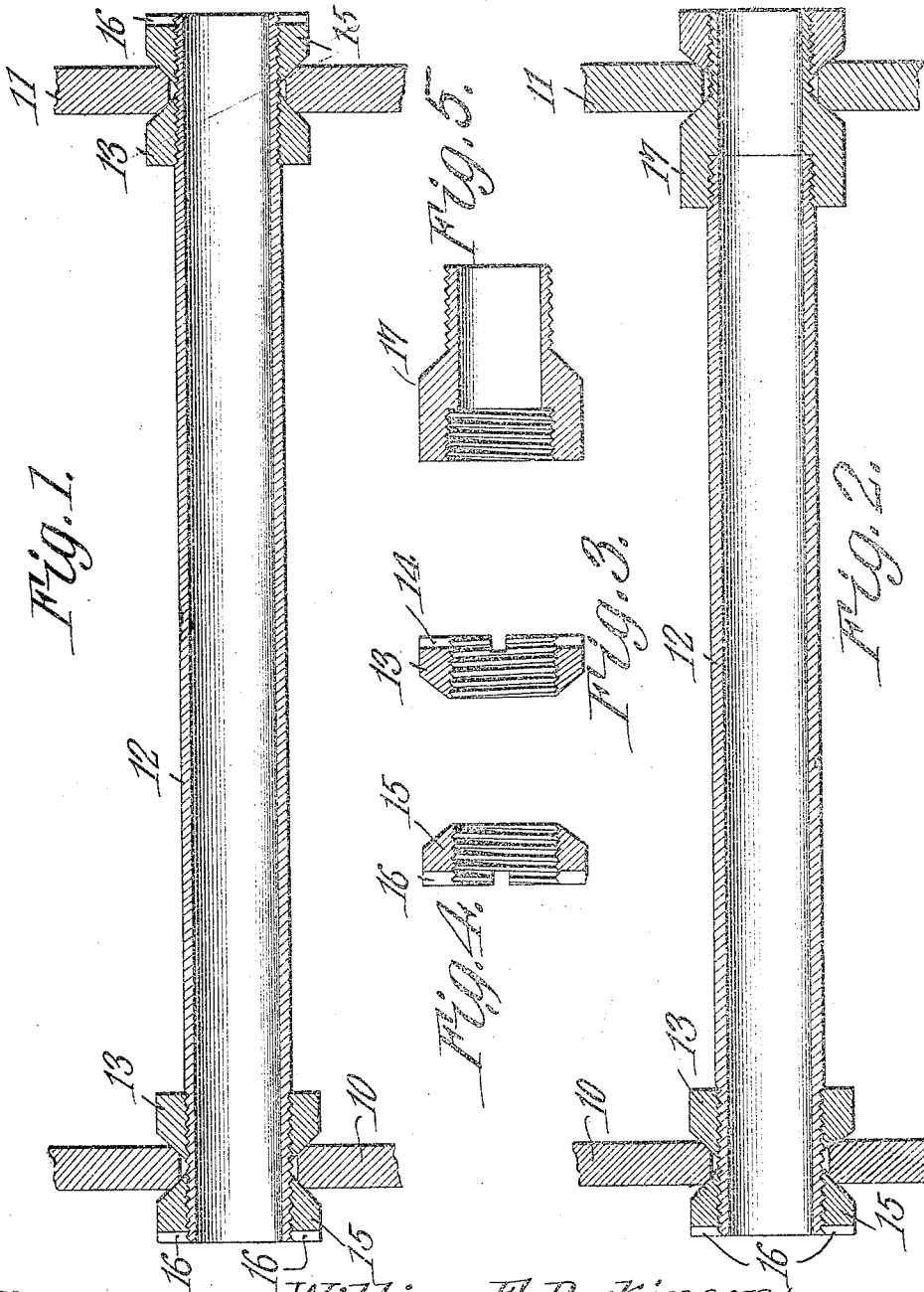


No. 891,783.

PATENTED JUNE 23, 1908.

W. E. PARKINSON.
BOILER FLUE FASTENER.
APPLICATION FILED FEB. 23, 1907.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM E. PARKINSON, OF CROWN POINT, INDIANA.

BOILER-FLUE FASTENER.

No. 891,783.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed February 23, 1907. Serial No. 358,941.

To all whom it may concern:

Be it known that I, WILLIAM E. PARKINSON, a citizen of the United States, residing at Crown Point, in the county of Lake and State of Indiana, have invented a new and useful Boiler-Flue Fastener, of which the following is a specification.

This invention relates to boiler flues, and has for its principal object to provide a novel form of fastening means for holding the flues to the flue sheets.

With this and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of construction may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a longitudinal sectional elevation of a boiler flue and its fasteners constructed in accordance with the invention. Fig. 2 is a similar view of the fastener illustrating particularly the construction adopted when used in connection with old flues. Figs. 3, 4 and 5 are details of the securing device more specifically described hereinafter.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

In devices of this class heretofore constructed, the end of the flue has been threaded to receive inner and outer clamping nuts bearing against the opposite faces of the flue sheet, but so far as I am aware no attempt has been made to provide an outer jam nut that tapers down in the form of a thin wedge, which, when inserted in the tapered wall of the flue sheet opening will firmly bind between the flue and the wall of the opening and permit to some extent a swaging action in order that the metal may conform to irregularities in the wall of the opening, and thus form a perfectly steam tight joint, the resistance to the leakage of steam being increased in proportion to the increase in pressure within the boiler.

In carrying out the present invention, therefore, provision is made for accomplish-

ing this result, and for forming a steam tight flue fastener without the aid of packing, without swaging of the end of the flue, and which will protect the end of the flue from the flame.

The flue sheets 10 and 11 are provided with openings that are tapered or counter-sunk on the outer sides or faces of the sheets, said openings being slightly greater in diameter than the external diameter of the flue 12. The flues are of the usual construction, that is to say, of uniform diameter, from end to end, and the end portions are provided with peripheral threads that extend some distance along the length of the flue, as shown in Fig. 1. On each end of the flue is screwed a jam nut 13, that preferably is provided with notches 14 for the reception of a suitable tool, and said nuts serve as bracing members to prevent inward movement of the sheets. The inner ends of the openings in the flue sheets are tapered or counter-sunk, and the ends of the jam nuts are tapered in order that they may closely fit within the tapered portions of the openings and form a perfectly steam tight joint.

The outer ends of the flue project some distance beyond the outer faces of the sheet, and each end of the flue receives a tapered nut 15 which, may, also, be provided with notches 16 for the reception of a tool. The inner end of the nut is tapered to a thin edge which enters the space between the periphery of the flue and the inner wall of the opening, and bears against the tapered portion of the wall of said opening, so that as the nut is turned, a swaging action will take place, and the tapered portion of the nut will conform to any irregularities in the wall of the opening, thus forming a joint that will be perfectly steam tight.

Owing to the engagement of the tapered face of the nut with the tapered wall of the opening, any bulging of the sheets which may occur through excessive pressure within the boiler will tighten the joint, the effectiveness of the joint increasing in proportion to the pressure exerted from within the boiler, so that leakage of steam is positively prevented and it becomes unnecessary to employ any packing or similar material, or to swage the end of the flue itself, so that if a flue is burned out or otherwise injured, it may be readily removed by unscrewing the nuts to permit the insertion of a new flue.

One of the particular advantages of the present invention is the ease and rapidity with which new flues may be placed in position as for emergency repairs at sea or at
5 other points where flues and the other facilities for the repairs of boilers are lacking. An old flue may be removed and the end portions which were previously upset cut away. This reduces the length of the flue
10 to a considerable extent, and it would not ordinarily be available for use in the same boiler.

The shortened flue is threaded at both ends, and one end is secured in place in the
15 manner previously described, while the opposite end is entered in an internally threaded thimble 17 having a tapered shoulder 18 that bears against the inner face of the flue sheet, that portion of the thimble which
20 bears against the flue sheet being tapered, and the wall of the opening being correspondingly tapered in order to insure a steam tight fit. The smaller end of the thimble which projects through the opening
25 in the flue sheet is threaded for the reception of a tapered nut of the character previously described, and the opening in the flue sheet is reamed out on tapered lines in readiness to receive said nut. These thimbles are usually
30 placed in the rear flue sheet and may be retained in position while the front ends are removed when it becomes necessary to re-

place the flue, so that the thimbles will be in readiness to receive a new flue.

With a device constructed in accordance
35 with the present invention, repairs may be readily made, and when new flues are employed in the manufacture of new boilers, they are so placed that any one, or more may be readily renewed without difficulty. 40

I claim:—

The combination with the flue sheets of a boiler, of a tube having one end secured for longitudinal adjustment in one of the flue sheets and its other end terminating short of
45 the other flue sheet, a thimble threaded on the latter end of the flue and having its bore of the same diameter as that of the flue and provided with a reduced threaded extension projecting through and beyond the last-
50 named flue sheet and with a tapered shoulder bearing against the interior edges of the flue opening through which the extension projects, and a nut screwed onto the projecting
55 end of the thimble and having a tapered shoulder bearing against the exterior edges of the flue opening.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM E. PARKINSON.

Witnesses:

GUSTAV ZACHAU,
FRANCES GRIMMER.