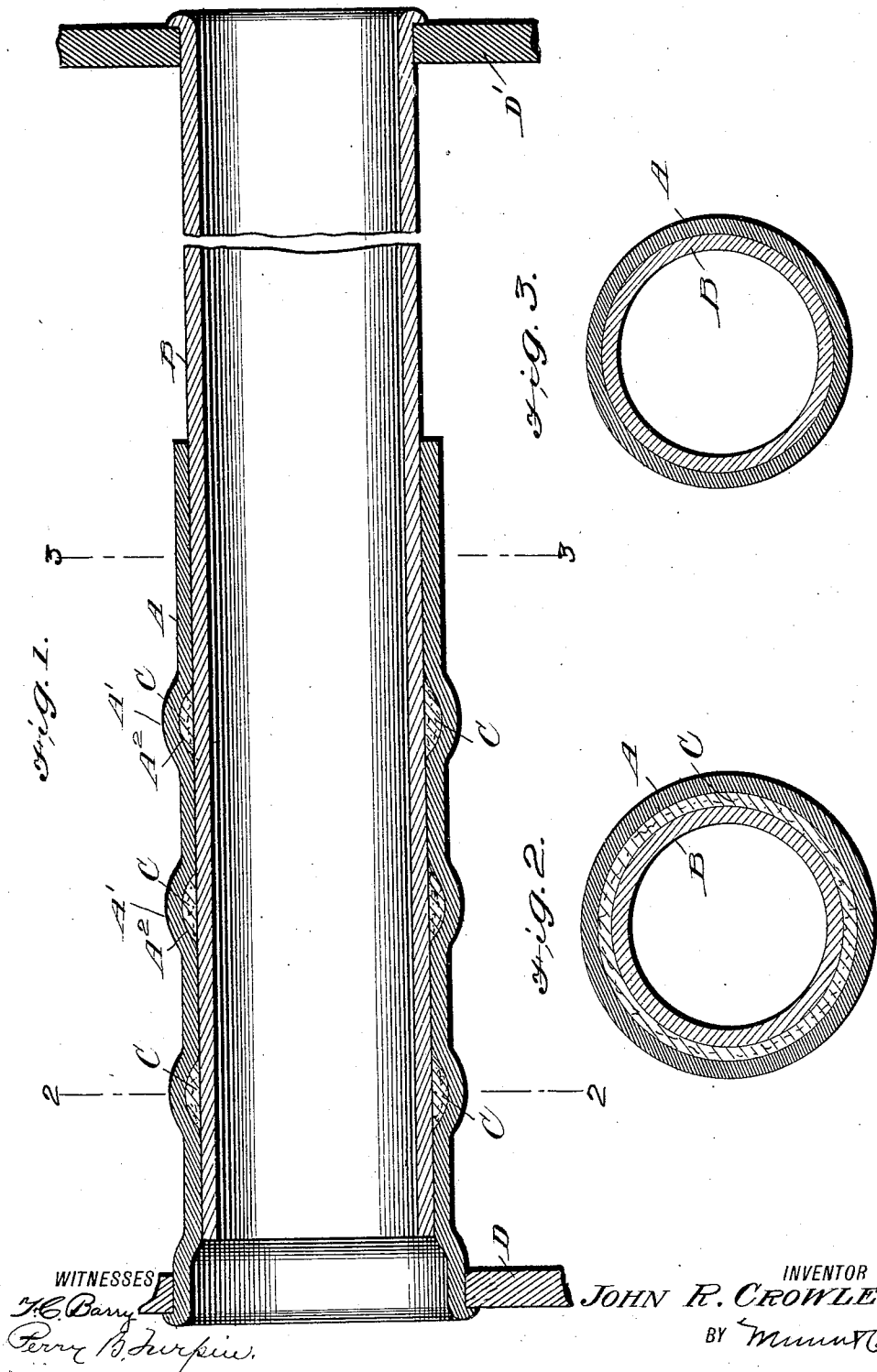


J. R. CROWLEY.
BOILER FLUE.
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977,276.

Patented Nov. 29, 1910.



WITNESSES
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UNITED STATES PATENT OFFICE.

JOHN ROBERT CROWLEY, OF ATLANTA, GEORGIA, ASSIGNOR OF ONE-HALF TO
NATHANIEL NELMS BOYDEN, OF ATLANTA, GEORGIA.

BOILER-FLUE.

977,276.

Specification of Letters Patent.

Patented Nov. 29, 1910.

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To all whom it may concern:

Be it known that I, JOHN ROBERT CROWLEY, a citizen of the United States, and a resident of Atlanta, in the county of Fulton and State of Georgia, have made certain new and useful Improvements in Boiler-Flues, of which the following is a specification.

This invention is an improvement in boiler flues and has for an object to provide a novel construction of flue tube whereby to avoid the objections incident to the non-expansible flues ordinarily employed; and the invention consists in certain novel constructions and combinations of parts as will be hereinafter described and claimed.

In the drawing Figure 1 is a longitudinal section of a flue tube embodying my invention in place in the flue sheets. Fig. 2 is a cross section on about line 2—2 of Fig. 1, and Fig. 3 is a cross section on about line 3—3 of Fig. 1.

As ordinarily constructed, boiler flues are made to extend continuously between the front and back flue sheets and on account of the frequent changes in temperature, especially in locomotive boilers, the flues are subject to frequent expansion and contraction whereby the flues become loose and leak.

By my invention I provide flue tubes which are made in longitudinal sections telescoping each other at their inner ends, and suitably secured at their outer ends to their respective flue sheets. Manifestly, they may be secured to their flue sheets, in any suitable manner, such for instance, as shown, and by telescoping at their inner meeting ends they permit the tube to expand and contract longitudinally without exerting any substantial strain upon the flue sheets.

In the construction shown I provide one of the sections, usually the outer section A which fits over the inner section B, with annular corrugations A' forming grooves A² of any suitable number in its inner side which receive packing C. This packing

may be in the form of rings or ferrules of compressed paper or other suitable material, preferably absorbent material capable of being acted upon by any steam or water passing between the flues, in such manner as to swell the packing sections C and improve the packing action.

Manifestly, the flue when contracted as shown and described may expand and contract longitudinally by the telescopic action thus relieving the strain on the front and rear flue sheets D and D'.

I claim—

1. The combination substantially as here-in described of front and rear flue sheets, a flue extending between the same and consisting of sections telescoping at their inner ends and suitably secured at their outer ends to their respective flue sheets, the outer one of said sections being provided with annular corrugations forming annular grooves on its inner side, and packing within the said grooves and surrounding the inner section all substantially as and for the purposes set forth.

2. The improvement herein described consisting of a front sheet, a rear sheet, flues extending between the front and rear sheets and composed each of sections suitably secured at their outer ends to the said sheets and telescoping at their inner ends, annular grooves being provided between the telescoping portions of said flues and gaskets within said grooves and adapted to be expanded by the action of the moisture within the boiler whereby to prevent the leakage of steam and water without retarding the longitudinal expansion and contraction of the telescoped tube sections, all substantially as and for the purposes set forth.

JOHN ROBERT CROWLEY.

Witnesses:

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