(No Model.)

2 Sheets—Sheet 1.

G. S. STRONG.

LOCOMOTIVE BOILER.

No. 266,551.

Patented Oct. 24, 1882.

FIG. 1.

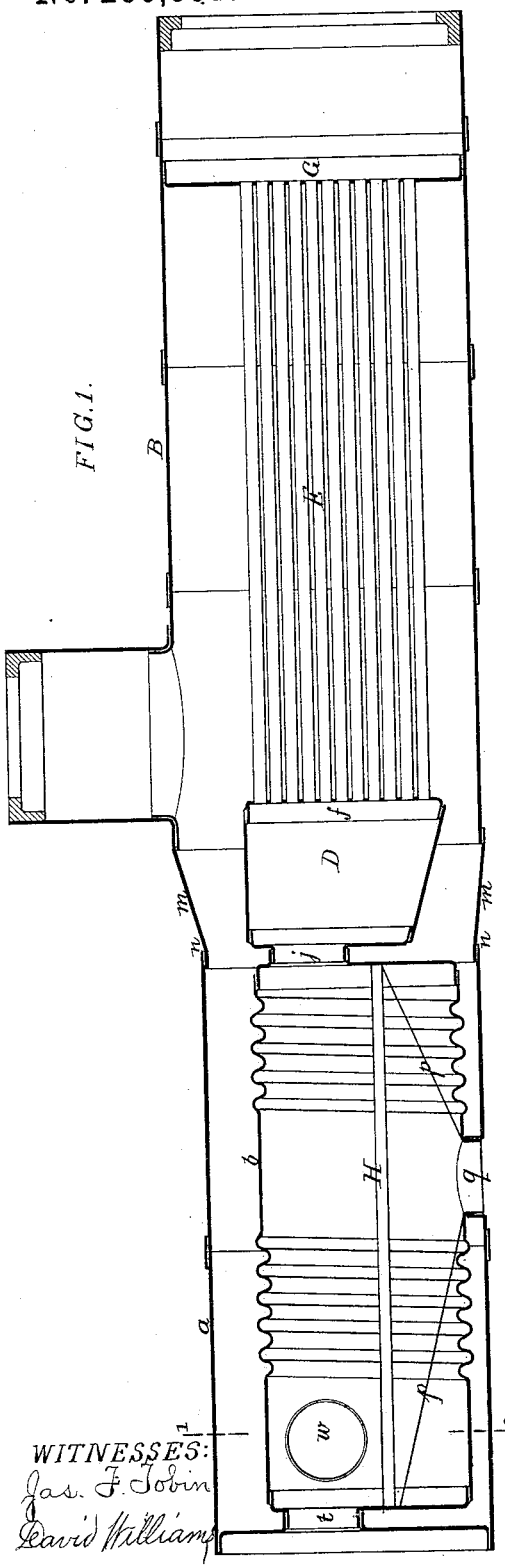
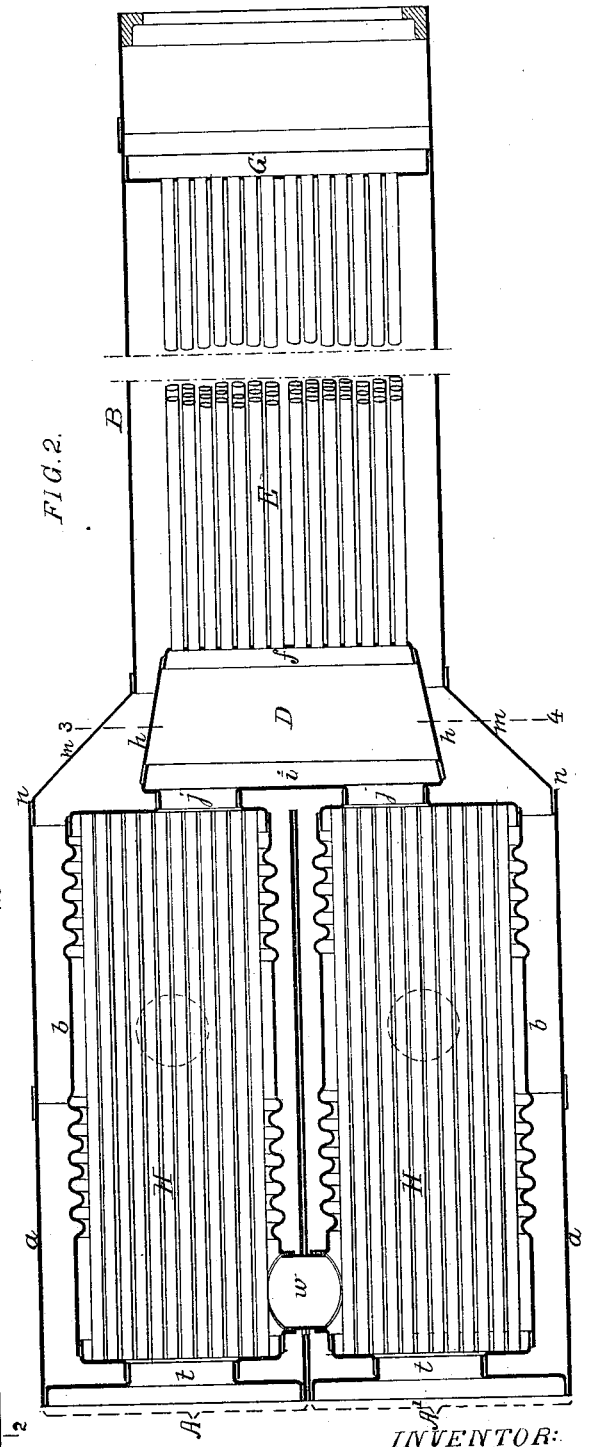


FIG. 2.



WITNESSES:

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Howson and Sons

(No Model.) 2 Sheets—Sheet 2.

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FIG. 4

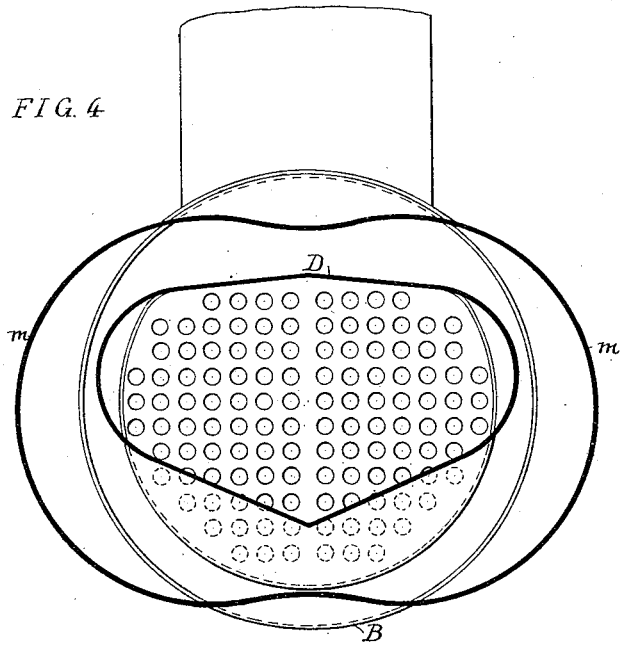
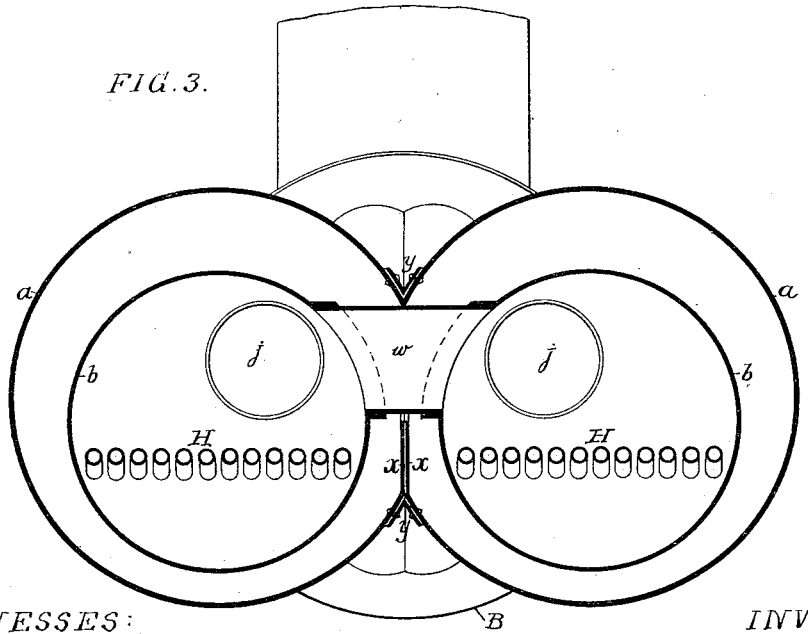


FIG. 3.



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UNITED STATES PATENT OFFICE.

GEORGE S. STRONG, OF PHILADELPHIA, PENNSYLVANIA.

LOCOMOTIVE-BOILER.

SPECIFICATION forming part of Letters Patent No. 266,551, dated October 24, 1882.

Application filed August 28, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. STRONG, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Locomotive-Boilers, of which the following is a specification.

The object of my invention is to make a locomotive-boiler with laterally-extended grate-surface without resorting to the usual heavy and costly crown-bars and stays; and this object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawings, in which—

Figure 1, Sheet 1, is a longitudinal vertical section of my improved locomotive-boiler; Fig. 2, a sectional plan; Fig. 3, Sheet 2, a transverse section on the line 1 2; and Fig. 4, a transverse section on the line 3 4.

Very wide fire-boxes have been recently adopted to a limited extent in the construction of locomotives, with the view of obtaining increased heating-surface and a more extended grate area; but the wide fire-boxes as heretofore constructed demanded massive and costly crown-bars and a complex system of stays. I obviate the necessity of these costly appliances by combining two cylindrical fire-boxes, A A′, placed side by side, with the usual cylindrical shell or barrel, B, in the manner which I will now proceed to describe.

Each of the fire-boxes consists of an outer cylindrical shell, *a*, and an inner cylindrical casing, *b*, the two shells being flattened at *x*, Fig. 3, where they meet each other, and where they are secured together by nuts or bolts, angle-irons *y y* being used as further means of attachment. The outer cylindrical shells of the two fire-boxes terminate in front at *n*, whence they merge into the cylindrical barrel B. A chamber, D, is formed by plates *h*, *f*, and *i* at or near the junction of the outer shells of the fire-box with the barrel of the boiler, the chamber being of the conformation best observed in Fig. 4, and the plate *f* of the chamber being the rear tube-sheet for the system of tubes E, the front ends of which terminate at the smoke-box in the usual manner. The chamber D is large enough to admit an operative and permit him to properly secure the tubes to the tube-sheet *f*. There is a direct communication between the end of each inner casing *b* of the fire-box and the chamber D through a tubular connection, *j*, two connections serving as mediums for securing the ends of the inner casings of the fire-boxes to the rear plate, *i*, of the chamber D.

It is not essential to the main feature of my invention that there should be a direct communication between the two fire-boxes; but I prefer the connections *w* between the two inner casings of the fire-box, so that if valves be applied to the connections *j j* the gases generated on the admission of a fresh supply of fuel into one chamber may be caused to pass into the other chamber and over the bed of incandescent fuel therein, so as to be ignited and consumed. I also prefer to corrugate the inner casings of the fire-box, as shown, in order to add to their strength.

H are the grate-bars, which preferably consist of tubes communicating with the water-spaces, and below the grate-bars are inclined shelves *p p* for directing the ashes to the opening *q*, through which air is admitted for supporting combustion.

There is the usual feed-opening, *t*, for each fire-chamber, and fire-doors similar to those of ordinary locomotive-boilers are furnished for each opening.

As both the inner and outer casings of both fire-boxes are cylindrical, it will be seen that the desired extended grate-surface is obtained without the objectionable crown-bars and array of stays which are such objectionable features in the modern wide fire-boxes which have been recently applied to locomotive-boilers.

I claim as my invention—

1. The combination, in a locomotive boiler, of two fire-boxes placed side by side, and each consisting of a cylindrical outer casing and a cylindrical inner casing, with the barrel into which the outer casings of the fire-boxes merge, substantially as set forth.

2. The combination of the two cylindrical fire-boxes placed side by side, and the tubed barrel B, into which the outer shells of the fire-boxes merge, with the chamber D, communicating with two fire-chambers of the fire-boxes and with the tubes of the barrel, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEO. S. STRONG.

Witnesses:
HARRY DRURY,
HARRY SMITH.