No. 704,753. Patented July 15, 1902.

G. D. MILLER.

STEAM BOILER.

(Application filed Nov. 23, 1901.)

(No Model.)

Fig. 1.

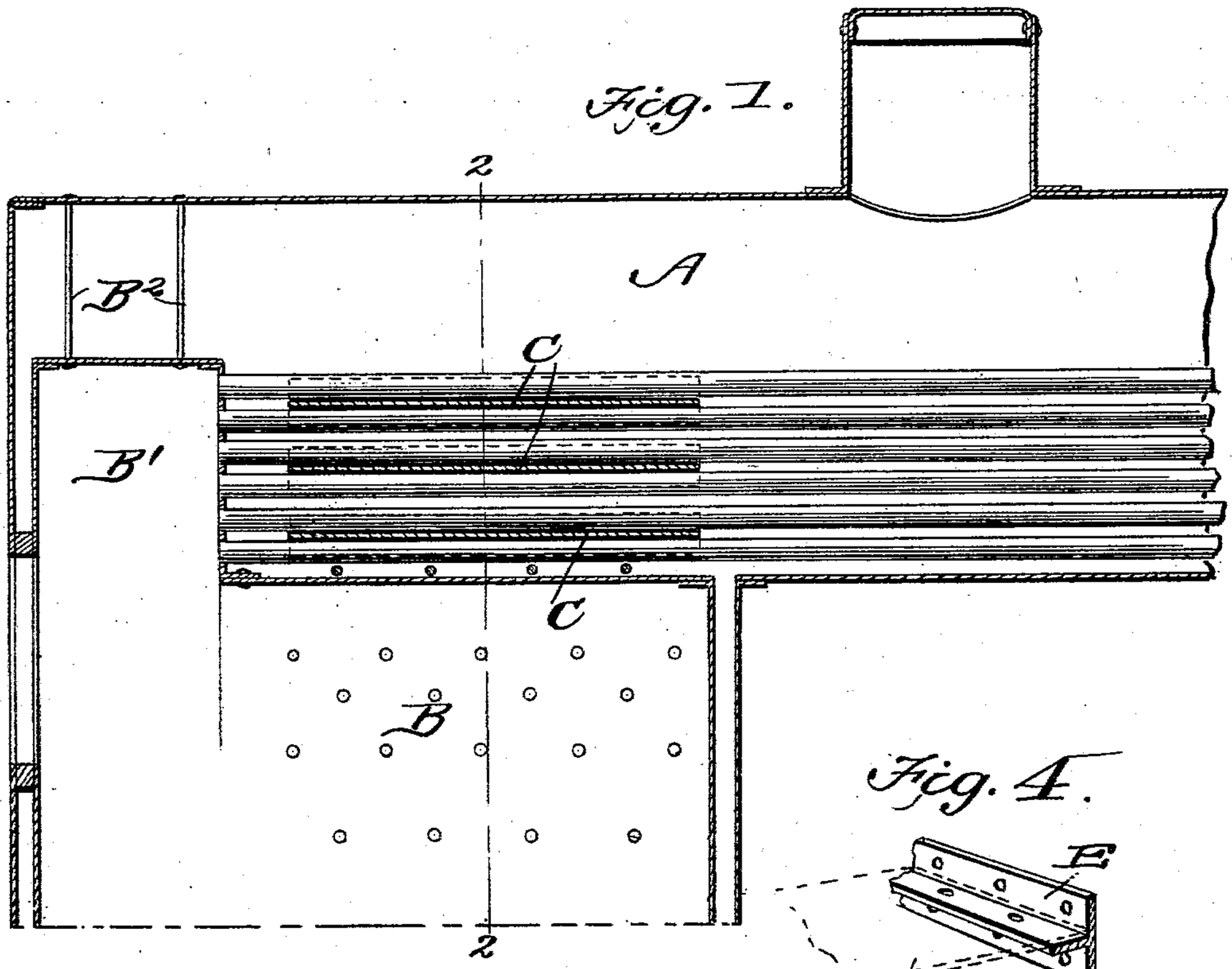


Fig. 4.

Fig. 2.

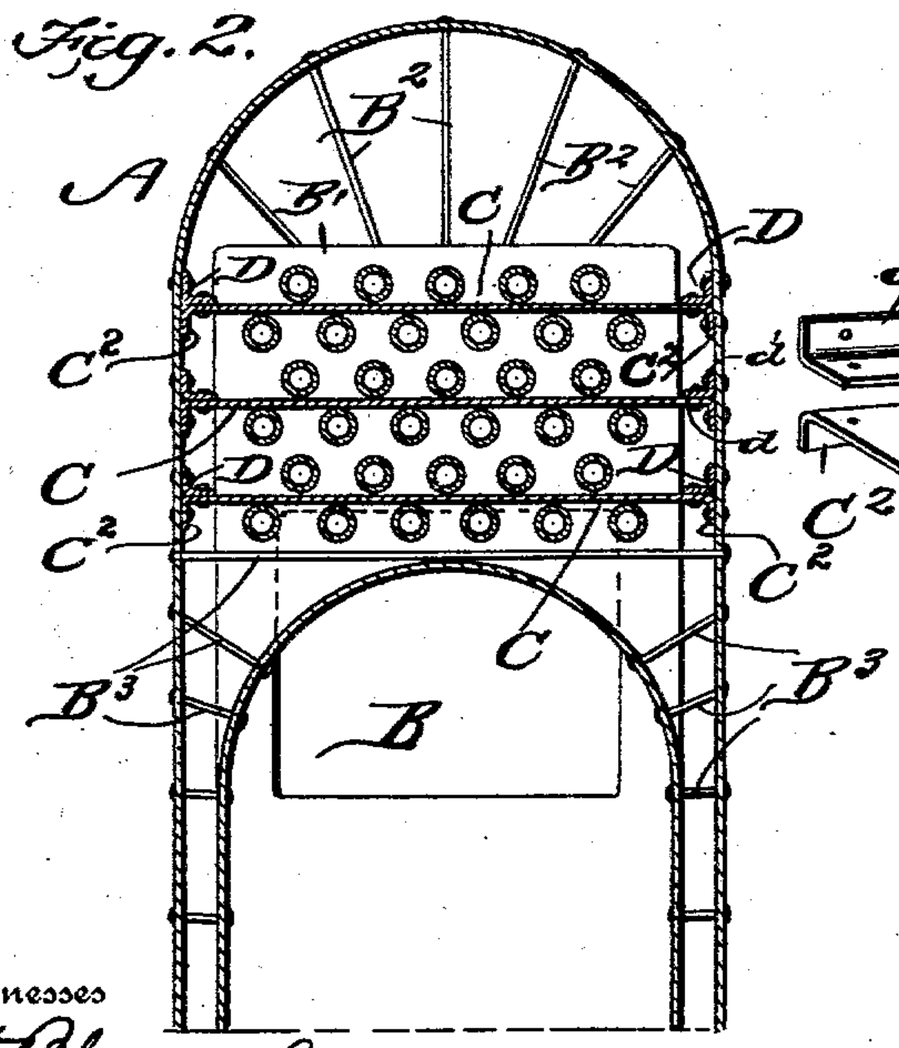
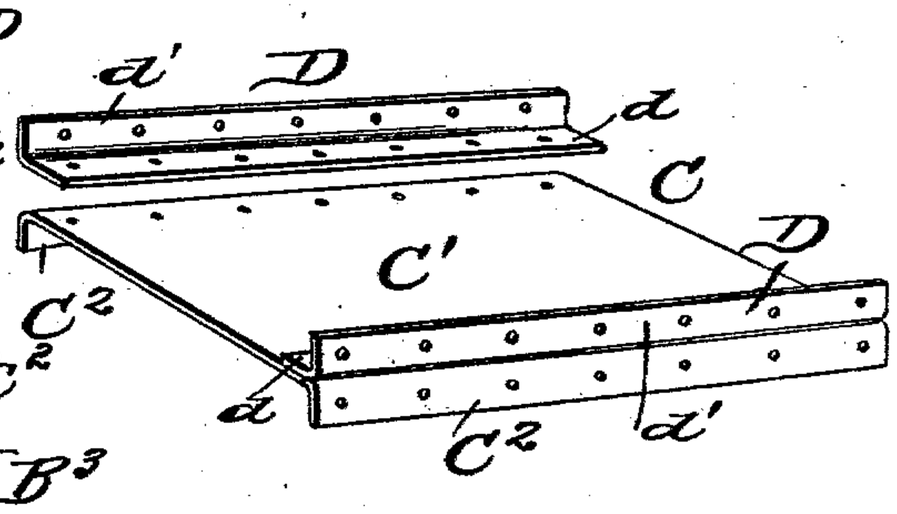


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

GIDEON D. MILLER, OF TUB, PENNSYLVANIA.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 704,753, dated July 15, 1902.

Application filed November 23, 1901. Serial No. 83,420. (No model.)

To all whom it may concern:

Be it known that I, GIDEON D. MILLER, a citizen of the United States, residing at Tub, in the county of Somerset and State of Pennsylvania, have invented a new and useful Improvement in Steam-Boilers, of which the following is a specification.

My invention is an improvement in steam-boilers and relates particularly to the construction in and adjacent to the fire-box; and the object of my improvement is to provide a simple, economical, and durable form of strengthening bolts and plates for staying the sides of the fire-box and boiler.

With this object in view the invention consists in the peculiar construction and novel combination and arrangement of parts, as will be fully described in the following specification and pointed out in the claims, reference being had to the drawings, in which—

Figure 1 is a diagrammatic longitudinal sectional view of the fire-box end of a boiler. Fig. 2 is a cross-section taken on about the line 2 2 of Fig. 1. Fig. 3 is a detail perspective view of one of the staying-plates, and Fig. 4 illustrates a modified form of angle-plates.

My invention is particularly applicable to boilers wherein the fire-tubes or flues are so arranged that the ordinary stay-bolts are impracticable, and in applying my improvement I have shown an ordinary steam-boiler A, having the fire-box B arranged in one end thereof, the forward portions of the sides of the box extending up past the lower edge of the boiler, as shown at B′, where it is braced to the outer shell of the boiler by stay-bolts B^2 B^2. The rear part of the fire-box also has a series of stay-bolts B^3, as shown most clearly in Fig. 2 of the drawings.

In the end of the boiler that projects into the fire-box I arrange a series of stay-plates C, comprising a body portion C′, whose ends are bent downwardly, forming short flanges, as shown at C^2, which are securely riveted to the sides of the boiler-casing, and in order to provide a further means for holding the plate I provide each plate at their flanged ends with angle-plates D, forming, as it were, T-shaped ends, the said angle-plate having one edge *d* riveted to the said stay-plate and the opposite edge *d′* securely riveted to the boiler-casing. These plates are intended to pass between the flues, as shown, and I have found from a practical application of them that a most satisfactory result has been obtained, and they can be used where it has been found impossible to place the ordinary stay-bolts.

It will of course be understood that any number of plates may be used as the occasion may require; but ordinarily the number shown in the drawings will suffice.

I may find it desirable to form the flanges of an entirely separate piece from the stay-plates, and in that case I arrange T-shaped plates E, as shown in Fig. 4, that are secured to the boiler and to each of which are connected the stay-plates C′. The result in this case is practically the same as that shown in Fig. 3 of the drawings.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a steam-boiler, the combination of a boiler, having one end terminating in a fire-box, stay-plates connecting the sides of the boiler, the said plates having their opposite ends bent downwardly to form short flanges, and angle-plates having one edge held to the plate, the opposite end being arranged for engagement with the sides of the boiler, substantially as shown and described.

2. In a steam-boiler, the combination of a boiler having one end terminating in a fire-box, tubes arranged in the boiler, angle-plates arranged upon the inner surface of the casing and adjacent the tubes, plates interposed between the tubes and having their ends connected to the said angle-plates, and stay-bolts connecting the inner shell of the fire-box and the casing of the boiler, substantially as described.

GIDEON D. MILLER.

Witnesses:
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