

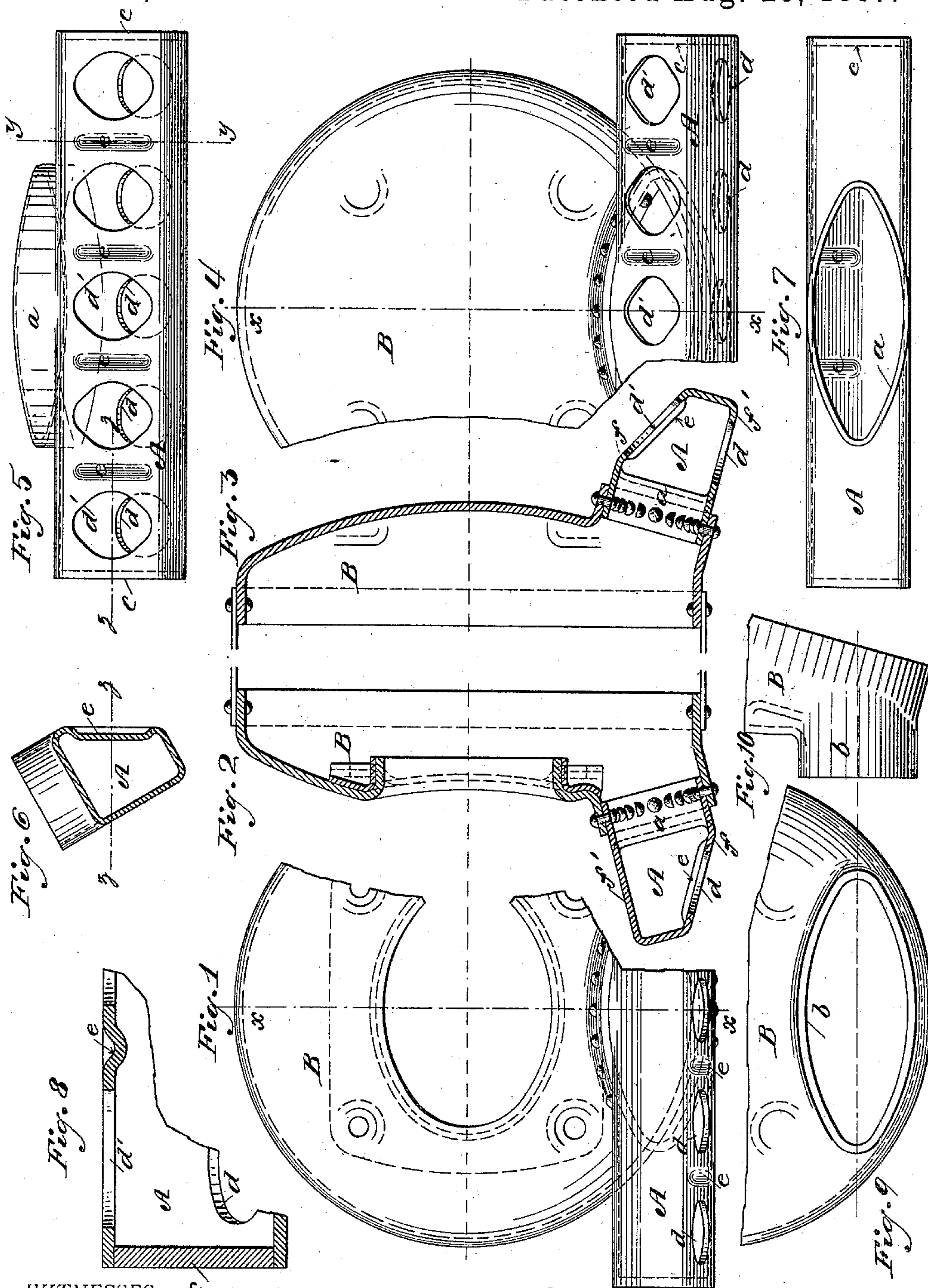
(No Model.)

G. H. BABCOCK & C. P. HIGGINS.

DRUM HEAD AND MANIFOLD FOR SECTIONAL STEAM GENERATORS.

No. 368,565.

Patented Aug. 23, 1887.



WITNESSES,

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DRUM-HEAD AND MANIFOLD FOR SECTIONAL STEAM-GENERATORS.

SPECIFICATION forming part of Letters Patent No. 368,565, dated August 23, 1887.

Application filed March 3, 1887. Serial No. 229,585. (No model.)

To all whom it may concern:

Be it known that we, GEORGE H. BABCOCK, residing at Plainfield, county of Union, State of New Jersey, and CAMPBELL P. HIGGINS, residing at Brooklyn, county of Kings, State of New York, citizens of the United States, have invented certain new and useful Improvements in Drum-Heads and Manifolds for Sectional Steam-Boilers, of which the following is a specification.

This invention relates to the construction of manifolds and drum-heads for use in making connection between a drum and a communicating series of water-tubes of sectional water-tube steam-boilers; and the said invention consists in applying certain novel features of construction to the said manifolds and heads for the purpose of producing them from wrought metal and for adapting them to be combined together.

In order to enable others skilled in the art to which our invention appertains to understand and use the same, we will proceed to describe the features of its construction, having reference to the accompanying drawings, and subsequently point out in the appended claims its novel characteristics.

Figure 1 is an elevation, partly broken away, of a front drum-head with a manifold connected thereto; Fig. 2, a vertical central section ($x x$, Fig. 1) of the drum-head and manifold as arranged for the front of the boiler; Fig. 3, a vertical central section ($x x$, Fig. 4) of the drum-head and manifold as arranged for the head of the boiler; Fig. 4, an elevation, partly broken away, of the rear drum-head and manifold; Fig. 5, a top view of the rear manifold; Fig. 6, a cross-section, $y y$, of Fig. 5; Fig. 7, a back view of a manifold, the perforations being omitted; Fig. 8, an enlarged section of one end of the rear manifold taken in the plane $z z$, Figs. 5 and 6; Fig. 9, a front view of the flanged portion of a drum-head in a plane normal to the axes of the opening; Fig. 10, a side view of the same.

The manifold A, consisting of a polygonal seamless tube having on its side a flanged opening, a , preferably of oval form, is fixed transversely to the drum-head B by means of riveting or otherwise securing said flanged

opening to a corresponding flanged opening, b , of said drum-head, the latter in the present instance being a domed head, to which the invention is particularly applicable. The flanged opening b of the drum-head lies at an angle intermediate to that of the sides of the trapezoidal cross-section of the polygonal tube A.

The ends of the polygonal tube A are closed by means of separate heads, c , welded or otherwise fixed therein.

One flattened side of the tube A is provided with a series of circular perforations, d , for the reception of the water-tubes, which are expanded or otherwise fixed therein. For the purpose of entering the tubes at the preferred angle to the axis of the drum it is desirable that the side having these perforations should stand at a similar angle to the said axis, which necessitates that the angle should be reversed relatively to the front and rear drum-heads. It will be observed that the blank manifold, Fig. 7, having a trapezoidal cross-section, is capable of being connected to the drum-head, as in Figs. 2 and 3, respectively, in reversed positions, the tube-perforations d in the former case being made on the side f of the trapezoid, and in the latter on the side f' thereof, whereby a front and rear drum-head may be made with one set of dies and from the same pieces. In the case of the rear drum-head, when it is desirable that the connecting-tubes be accessible by a tube-cleaning implement through the approximately opposite flattened side of the manifold, the said opposite side is for that purpose provided with perforations d' , corresponding to the perforations d , and having a form suitable for the introduction of hand-hole plates, Figs. 3, 4, and 5.

The portions of the flattened surfaces between the perforations d and d' have, by preference, corrugations or indentations e pressed in the metal for the purpose of stiffening these points. The said corrugations appear in section in Figs. 6 and 8.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. A domed wrought-metal drum-head with an opening therein flanged outward for the reception of a manifold, substantially as described.

2. A wrought-metal drum-head with an opening therein flanged outward, in combination with a wrought-metal manifold adapted to be attached to said flanges, substantially as specified. 5

3. A wrought-metal manifold for a water-tube boiler formed from a polygonal seamless tube, and provided with a flanged opening, whereby it may be attached to a drum, substantially as specified. 10

4. A wrought-metal manifold for a water-tube boiler formed from a polygonal seamless tube, and provided with an opening on one side, in combination with a wrought-metal drum-head having a corresponding opening, substantially as specified. 15

5. A wrought-metal manifold for a water-tube boiler formed from a trapezoidal tube, and provided with an opening on a side between two inclined sides, in combination with a drum-head having a corresponding opening at an intermediate angle to that of the sides of the trapezoid, substantially as specified. 20

6. A wrought-metal reversible manifold for water-tube boilers adapted to stand at the same angle to the center line of the drum when 25

reversed and applied to a reversed head, substantially as specified.

7. A wrought-metal manifold for water-tube steam-boilers of a trapezoidal form in cross-section, with perforations for tubes upon one and hand-holes upon the other of the non-parallel sides. 30

8. A wrought-metal manifold having corrugations in the flat sides thereof, substantially as described. 35

9. The combination of a wrought-metal drum-head and a wrought-metal manifold, the two being rigidly secured to each other and adapted to be connected to the shell by riveting the same to the flange of the drum-head only, substantially as specified. 40

10. A combined wrought-metal drum-head and manifold for water-tube boilers, composed of a flanged drum-head and a flanged manifold, substantially as specified. 45

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Witnesses:

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