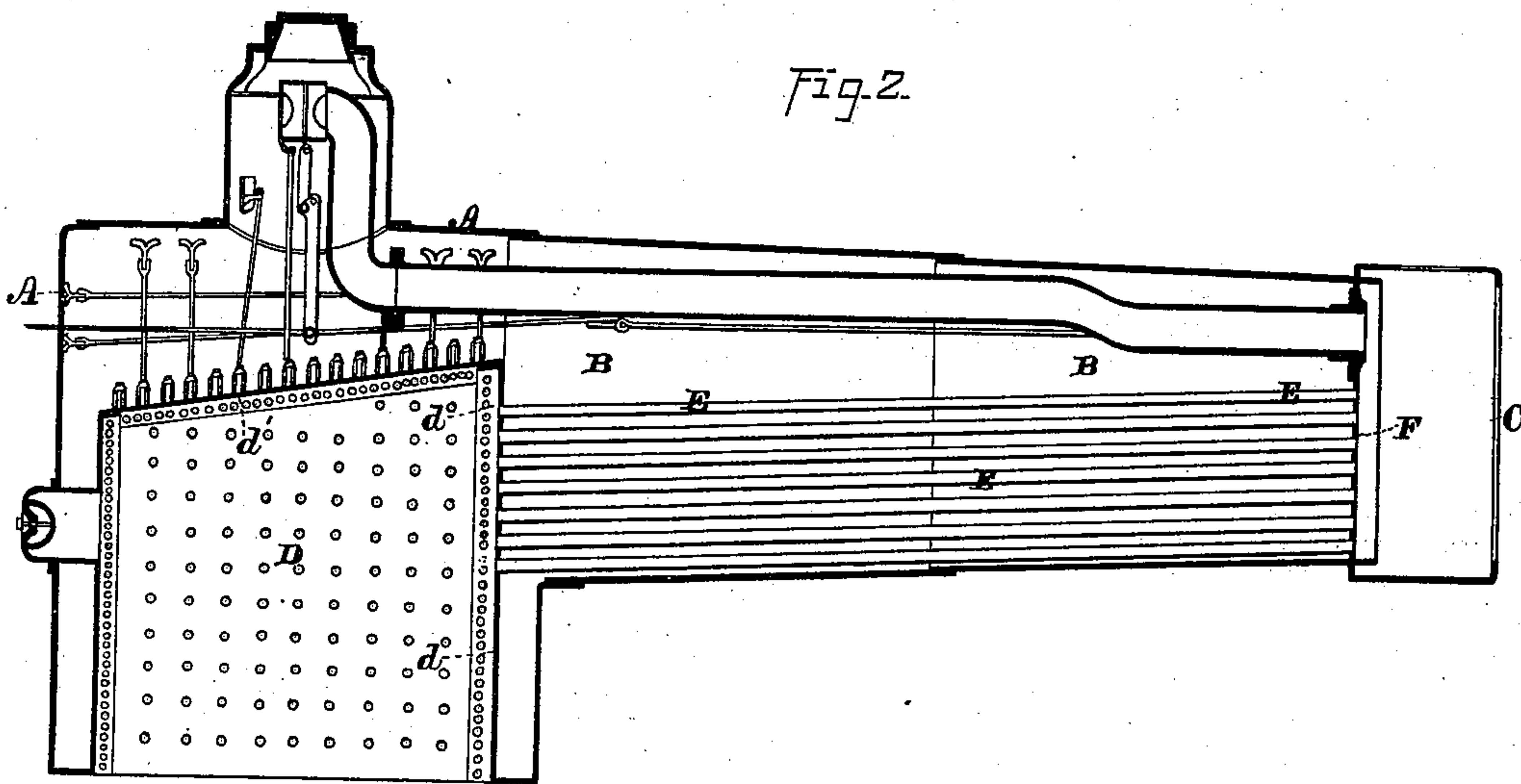
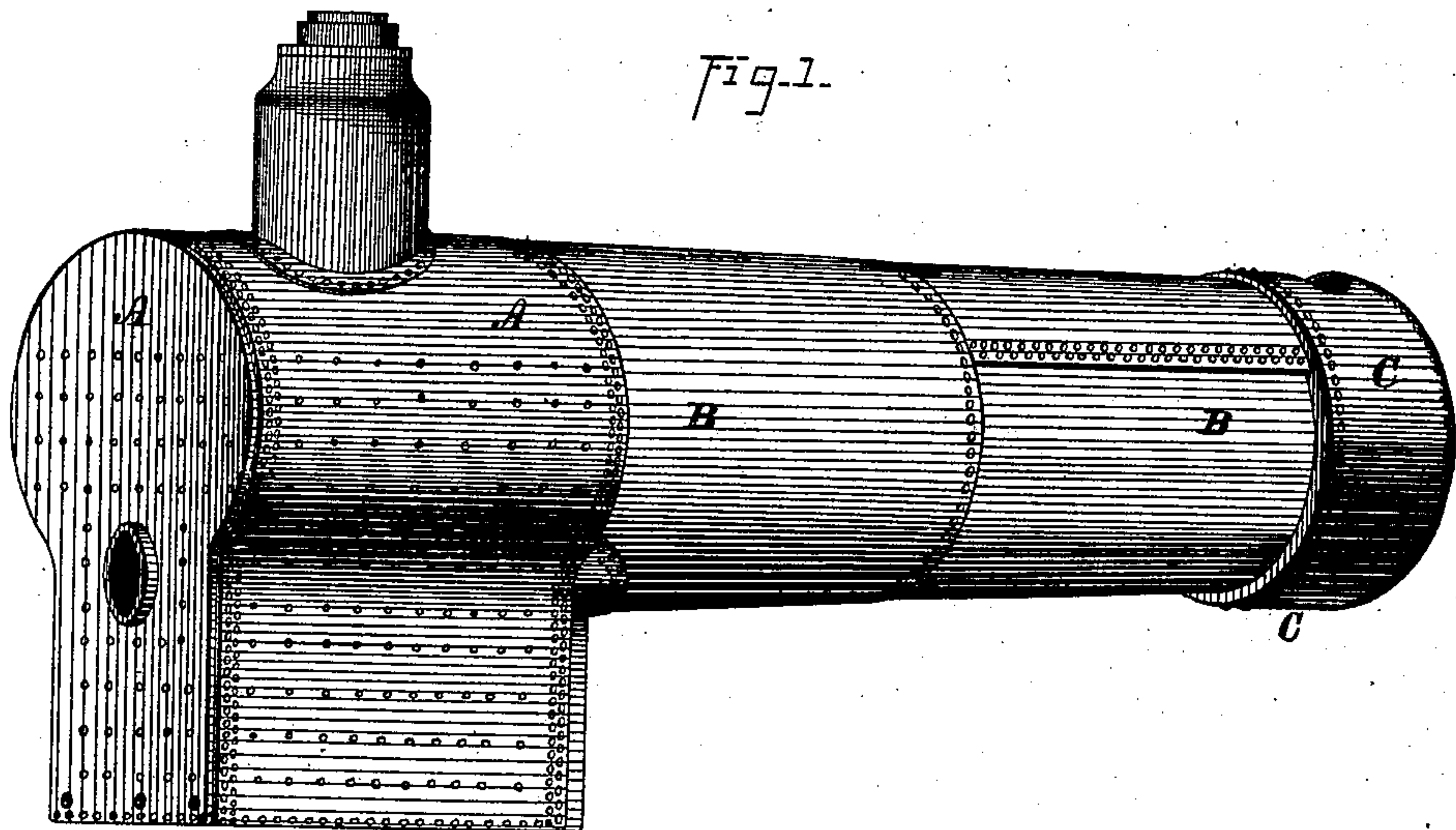


(Model.)

H. A. TOWNE.
Locomotive Boilers.

No. 230,363.

Patented July 20, 1880.



WITNESSES

John C. Hutchinson.

Henry C. Hazard.

INVENTOR.

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Prindle & Co. his attys.

UNITED STATES PATENT OFFICE.

HORACE A. TOWNE, OF BRAINERD, MINNESOTA.

LOCOMOTIVE-BOILER.

SPECIFICATION forming part of Letters Patent No. 230,363, dated July 20, 1880.

Application filed June 11, 1880. (Model.)

To all whom it may concern:

Be it known that I, HORACE A. TOWNE, of Brainerd, in the county of Crow Wing, and in the State of Minnesota, have invented certain new and useful Improvements in Locomotive-Boilers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my improved boiler, and Fig. 2 is a vertical longitudinal section of the same upon a central line.

Letters of like name and kind refer to like parts in each of the figures.

My invention is designed to secure in locomotives the greatest possible efficiency with the least dead weight, which result is obtained by increasing the weight upon the driving-wheels and decreasing the weight supported by the truck.

To this end it consists in a locomotive-boiler in which are combined the following-named elements, to wit: a cylindrical or flue section which increases in diameter from its front end rearward, a fire-box section having vertical parallel side walls and a semi-cylindrical or "wagon" top, and a fire-box that has a crown-sheet which inclines downward and rearward from the flue-sheet, substantially as and for the purpose hereinafter shown and described.

In the annexed drawings, A represents the fire-box section of my boiler, which has vertical parallel side walls, a semi-cylindrical or wagon top and vertical front and rear walls.

From the front end of the section A a cylinder, B, extends forward to the required distance, and at its front end is provided with a smoke-box, C, of usual form.

The cylindrical or flue section B has the largest practicable diameter at its rear end, said diameter being governed by the distance between the driving-wheels of the engine; and at its front end said section has the least diameter that is practicable, in view of the number and dimensions of the flues to be used, while between said ends said section has a regular taper, as shown.

In consequence of the form of my boiler,

the weight of the rear end is materially greater, and the weight of its front end materially less than in boilers having straight cylindrical sections, the result being a transfer of weight from the truck to the driving-wheels, and a corresponding increase in the adhesion of said wheels, which materially enhances the power of the locomotive.

It will be seen that the vertical increase in the diameter of the section B is the same in each direction from a horizontal line, so that the axis of such portion is horizontal, as in boilers of usual form. This construction is material to the perfect operation of the boiler, as by making the vertical increase in the diameter of said section B wholly upon the lower side, and leaving its upper side horizontal, the depression immediately in front of the fire-box would interfere with the axle of the front driving-wheels, and the elevation of the front end of said section B would render necessary a longer connection between the same and the truck, and increase the liability to breakage and injury.

The fire-box D has vertical side and end walls, that at the front end, *d*, forming the flue-sheet, from which a series of flues, E, extend forward and upward in lines parallel with the lower side of the cylinder B, and at their front ends are secured within the usual flue-sheet F.

The crown-sheet *d'* of the fire-box D has a downward inclination from its front end to its rear end, the result being an improvement in its heating qualities, as said sheet is brought nearer to the fire than would be possible if it were carried horizontally rearward from above the flues E, while by such inclination the removal of sediment from its upper side is greatly facilitated, as more space is afforded for operating upon it through the dome.

The upward and forward inclination of the crown-sheet *d'* and flues E operates to improve the draft of the boiler, and said flues are more easily cleaned than when placed horizontally.

Another advantage obtained by the construction of the cylindrical portion of the boiler is the equal expansion and contraction of its sides, said sides having exactly equal length.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

5 A locomotive-boiler in which are combined the following-named elements, to wit: a fire-box section having vertical walls and a semi-cylindrical or wagon top, a cylindrical or flue section which decreases regularly in diameter from its rear end to its front end, and a fire-
10 box that has a rearward and downward in-

clining crown-sheet, substantially as and for the purpose shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of April, 1877.

HORACE A. TOWNE.

Witnesses:

E. WESTFALL,
A. T. WOODRUFF.