# F. A. WOODSON.

## Steam-Boilers.

No. 134,720. Patented Jan. 7, 1873.

*Fig. 1.*

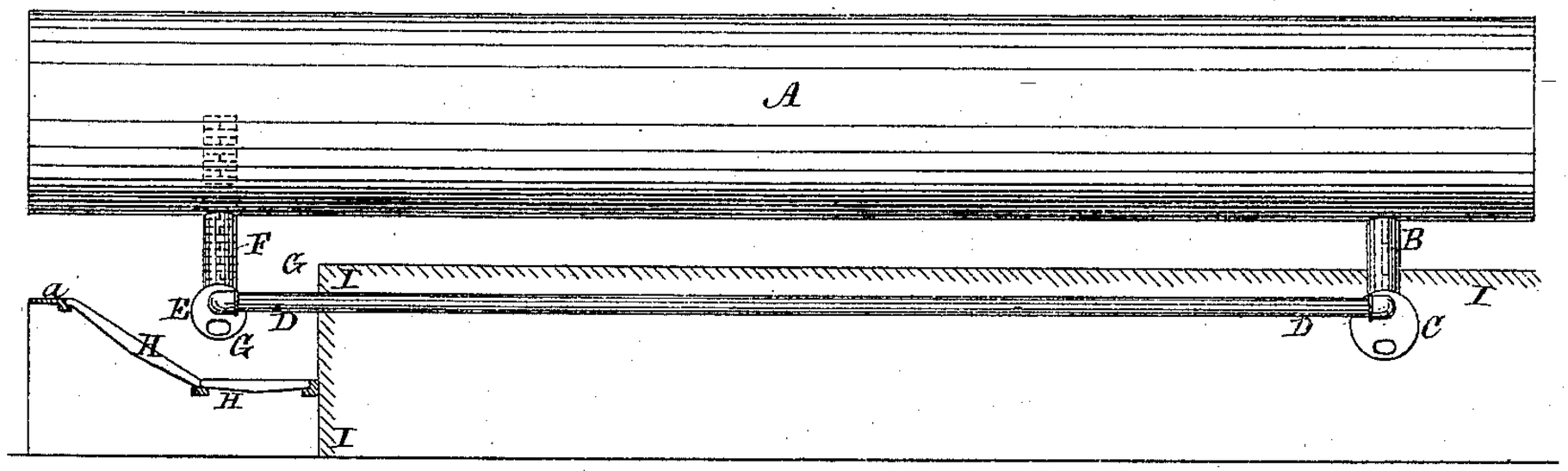



*Fig. 2.*

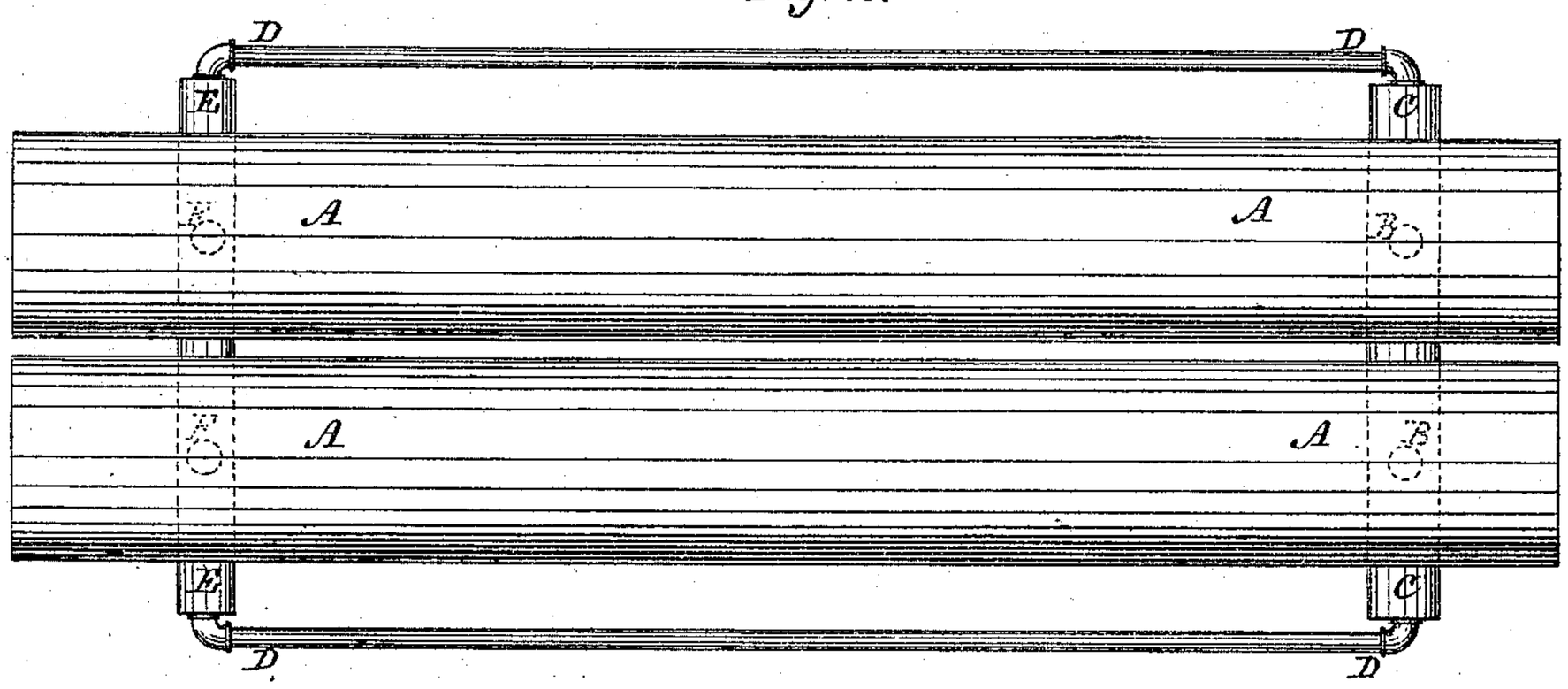
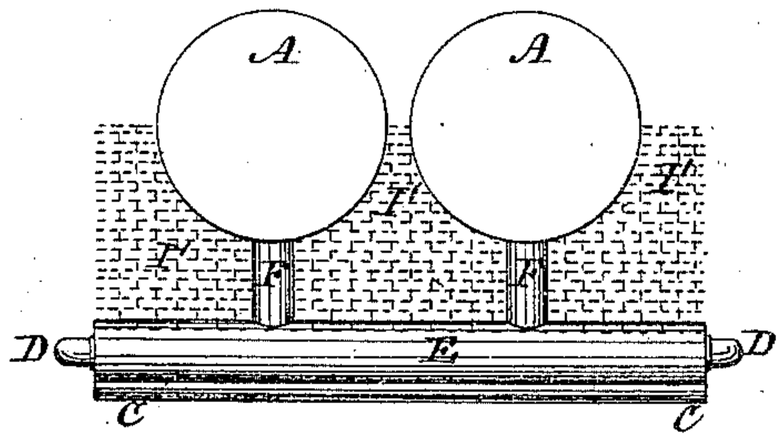



*Fig. 3.*




Witnesses,

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# UNITED STATES PATENT OFFICE.

FREDERICK A. WOODSON, OF SELMA, ALABAMA.

## IMPROVEMENT IN STEAM-BOILERS.

Specification forming part of Letters Patent No. **134,720**, dated January 7, 1873.

*To all whom it may concern:*

Be it known that I, FREDERICK A. WOODSON, of Selma, in the county of Dallas and State of Alabama, have invented certain new and useful Improvements in Steam-Boilers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 represents, in elevation, partly sectional, a boiler having my improvement applied to it; Fig. 2 represents a top plan of a pair of boilers with the circulator, heater, and settler applied thereto; and Fig. 3 represents an end view of the same.

My invention consists in the arrangement of a water-leg and mud-drum at the rear of and below the boiler, and a similar water-leg and mud-drum near the front of the boiler, and immediately in and over the fire, fuel, or fire-box, so as to receive the intensity of the burning gases, and connecting these two mud-drums by side pipes outside of the brick-work, so as to afford free circulation, uniform temperature, and separation of all mud and sediment from the water.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawing.

A A represent a pair of ordinary tubular boilers, and which may be bricked up, as shown in the drawing. At or near the rear ends of these boilers are water-legs B, which at their lower ends connect with a mud-drum, C, in which the sediment is collected, and from which, with suitable cocks, it may be blown out when necessary. From the ends of this mud-drum circulating-pipes D D extend forward and connect with the ends of another mud-drum or circulator, E, which is connected to the front of the boiler by the water-legs F F. Whatever sediment may collect in the mud-drum E may be blown out through suitable cocks, but the most will settle in the drum C. The mud-drum E is located in the combustion-chamber G, immediately above or over the fuel, which is burned upon the bars H. The front end *a* of the grate-bars is left open for the free admission of air, which becomes highly heated and mixes with the gases rising or distilled from the burning coal in the combustion-chamber, and is there burned. The water in the drum E and in the front of the boiler, being in more direct contact or proximity to the burning products or gases, becomes more highly heated than that more remote; but by the system of pipes and drums as herein described the circulation of the water is so rapid as to impart a uniform, or nearly so, temperature to the water.

Any number of boilers may be similarly united and connected. The setting or brick-work is shown at I and I′, the former representing the longitudinal and the latter the cross-walls or brick-work, which latter wall I′ rests upon the mud-drum E and incloses and protects the water-legs F F, and the circulating-pipes D are outside of said brick-work.

Having thus described my invention, what I claim is—

In combination with one, two, or more boilers, A, and with a fire-box or combustion-chamber, G, the mud-drums C E, arranged as shown, viz., the drum C at the rear of the boiler, and the drum E at the front thereof and in the combustion-chamber, and connected to the boilers by the water-legs B F, and to each other by the circulating-pipes D D outside of the brick-work, as and for the purpose described and represented.

F. A. WOODSON.

Witnesses:
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