W. ORD.

CIRCULATING DEVICE FOR STEAM BOILERS.

No. 186,493. Patented Jan. 23, 1877.

Fig. 1.

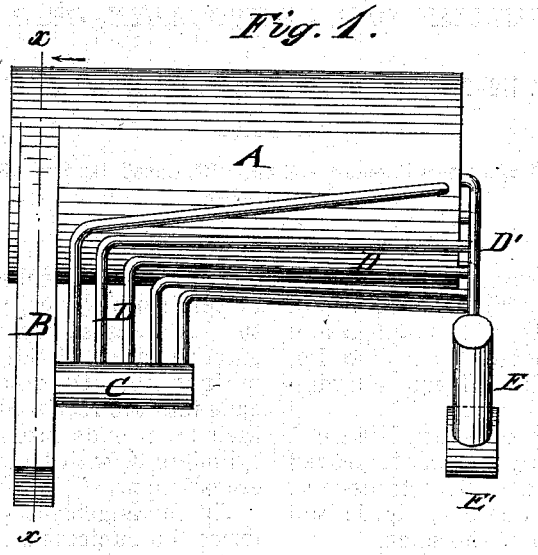


Fig. 2.

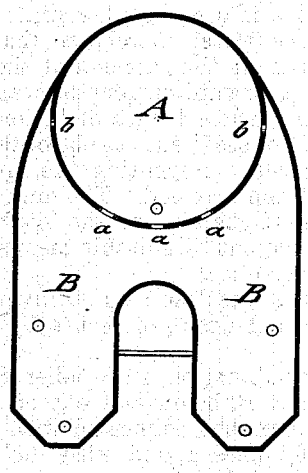
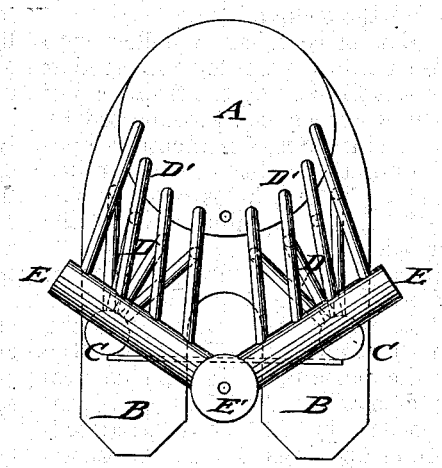


Fig. 3.



WITNESSES:

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WILLIAM ORD, OF BROOKLYN, OHIO.

IMPROVEMENT IN CIRCULATING DEVICES FOR STEAM-BOILERS.

Specification forming part of Letters Patent No. **186,493**, dated January 23, 1877; application filed October 23, 1876.

To all whom it may concern:

Be it known that I, WILLIAM ORD, of Brooklyn, in the county of Cuyahoga and State of Ohio, have invented a new and Improved Steam-Boiler, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation of my improved steam-boiler. Fig. 2 is a vertical transverse section of the same on line *x x*, Fig. 1; and Fig. 3 is a rear elevation of the same.

Similar letters of reference indicate corresponding parts.

The invention relates to improvements in steam-boilers, by which the boiler is kept in effective manner free from mud and sediment, preventing the mud from settling at the rear end, and carrying the same forward to be deposited in a mud-drum at the front part of the boiler, where suitable means are provided for washing out the sediment.

The invention consists of a boiler with a downward-extending water-leg, arranged at both sides of the fire-box at the front end of the boiler, the water-leg being connected by rear cylinders and a series of conducting-tubes to the rear end of the boiler. The water-leg communicates by bottom holes, and by side holes near the corner or upper part of the leg, with the boiler.

In the drawing, A represents a tubular or other steam-boiler, which is provided with a water-leg, B, that extends downward at the front end of the boiler, at both sides of the fire-box, for the purpose of serving as fire-front and mud-chamber, the usual mud-drum being dispensed with. The boiler communicates by bottom openings *a* with the water-leg, and also by side openings *b*, near the upper part or corner of the water-leg, where the same is attached to the sides of the boiler.

From both sections of the water-leg B extend in backward direction cylindrical tubes C, that are arranged at suitable height above the lowermost part of the water-leg, so that the parts below the cylinders or foot serve as mud-chamber for collecting the sediments.

The cylindrical tubes C connect by a series of conducting-pipes, D, with the rear end of the boiler, as shown in Fig. 1, the pipes D entering either directly into the boiler or into upright pipes D′, that open with their upper ends into the rear wall of the boiler, and with their lower ends into inclined mud-collecting cylinders E, with a mud-drum, E′, at the lowermost point.

This arrangement of pipes and cylinders forms the subject-matter of a separate application heretofore filed by me.

The water in the water-leg is heated up therein, and the steam generated will find an outlet to boiler at the upper corner on each side. The water descending next to the outside of the water-leg is cooler than that descending at the inside next to the fire. The cooler water passes down and through extension-cylinders C into the conducting-pipes D, which are in direct contact with the fire that heats the water therein, so that it ascends and enters at the rear end of the boiler, producing a forward current of water, that acts along the whole length of boiler, and carries the mud or sediments to the outlet at the foot of water-leg, preventing the mud from settling at the rear end. The mud is deposited in the mud-chamber at the foot of water-leg, and blown out by suitable means, in the customary manner.

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

The combination, with boiler A, of the water legs B B, below and out of contact with the fire-box, but connected with the front of boiler by holes *a*, and with the rear thereof by tubes C D D′, as shown and described, whereby that portion of legs B below the tubes C is made to serve the purpose of mud-drums, while a constant current is forced longitudinally through the boiler.

WILLIAM ORD.

Witnesses:

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H. A. HIRT.