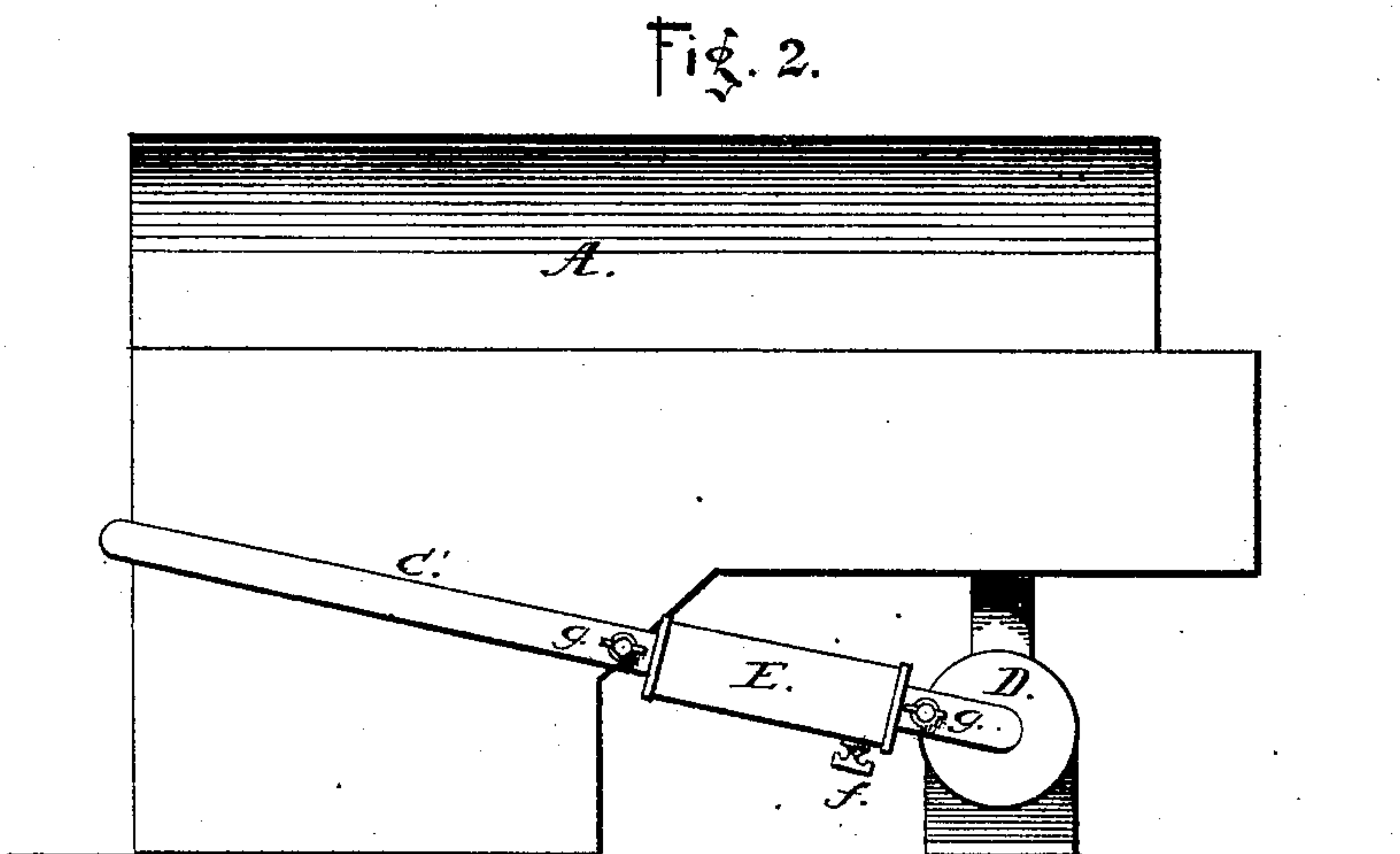
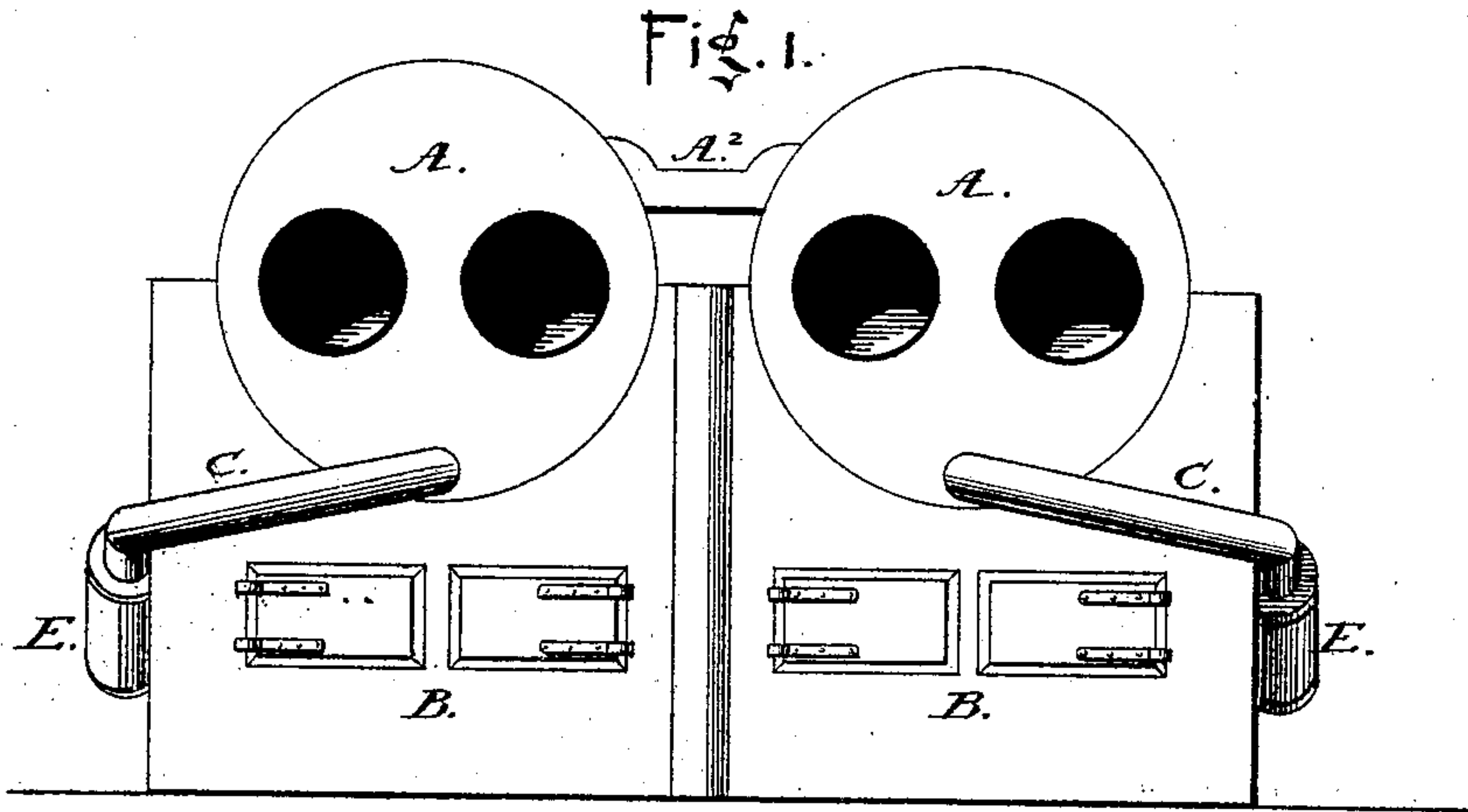


WILLIAM DILLON.

Improvement in Water Circulating-Pipes for Steam-Boilers.

No. 127,466.

Patented June 4, 1872.



Attest;  
W. J. Anderson  
A. C. Kline

Inventor;  
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Fig. 3.

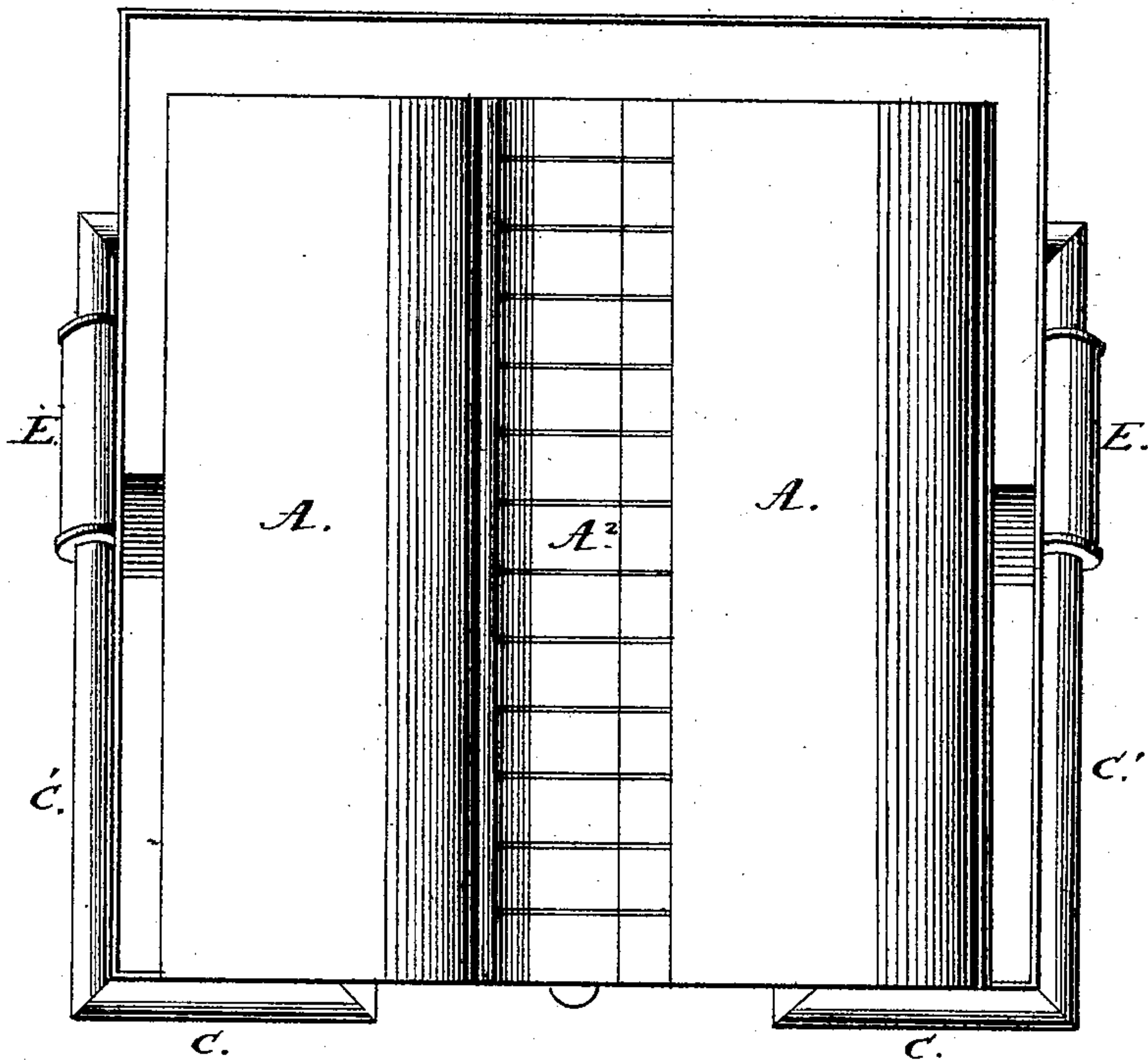
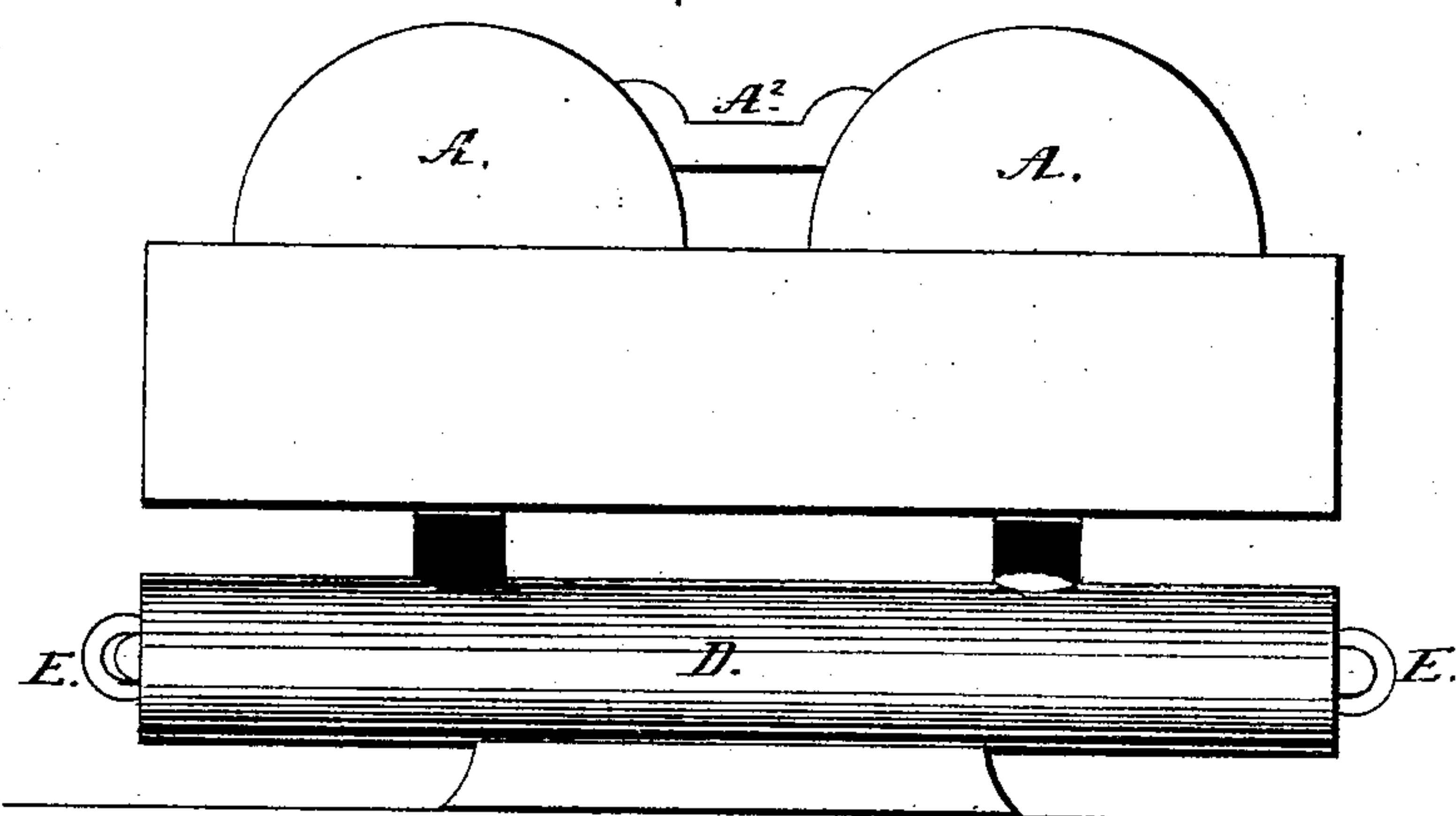


Fig. 4.



Attest;  
*W. Gardner*  
*A. C. Kline*

Inventor;  
*William Dillon*



# UNITED STATES PATENT OFFICE.

WILLIAM DILLON, OF WHEELING, WEST VIRGINIA.

## IMPROVEMENT IN WATER-CIRCULATING PIPES FOR STEAM-BOILERS.

Specification forming part of Letters Patent No. 127,466, dated June 4, 1872.

### SPECIFICATION.

*To all whom it may concern:*

Be it known that I, WILLIAM DILLON, of the city of Wheeling, in the county of Ohio and State of West Virginia, have made the invention hereinafter set forth, of which the following is a specification, reference being had to the accompanying drawing and the letters of reference thereon.

My invention relates to an improvement in steam-boilers; and consists in a water-circulating pipe leading from the mud-drum, under the rear end of the boiler, forward to and into the front end, near to the bottom of the same; the said pipe being provided with a mud or sand arrester near to its place of intersection with the mud-drum, and with a cock on each side of the mud-arrester, as hereinafter described. The object of my invention is to afford an opportunity to enter and clean out the mud-arrester while the boiler is in operation.

Figure 1 is a front elevation of boilers. Fig. 2 is a side elevation of same. Fig. 3 is a plan or top view. Fig. 4 is an end elevation.

A A', two steam-boilers; B B', two fire-boxes; C C', water-circulating pipes, intersecting mud-drum D, (of ordinary construction,) and leading therefrom to the front of the boiler, and entering therein near its bottom, the object of which pipe will be hereinafter more fully shown. E, mud or sand arrester, provided with discharge-cock *f*; the object of which arrester is to arrest the mud and sand in the water and separate them therefrom, as the water passes through it, by means of any suitable open material placed therein. *g g'*, valves in pipes C C', to stop the flow of water through them, so that the discharge-cock *f* can be opened to let out the mud deposits in the arrester, or so that one of the cocks can be closed

and the other partly so, so that the mud deposits can be blown out of the arrester through the cock *f*. The arrester E can also be taken off and cleaned out.

### *General Operation.*

In the heating of the boiler the bottom of the front part, immediately over the fire, becomes and remains the hottest, which causes the water therein to circulate or flow from the rear to the front through the pipe C, and thence back again to the rear through the boiler, and so on in a continuous current, which prevents, in a great measure, the conflict of currents which takes place in a boiler when the water flows backward and forward within the same. The water, by its repeated passing through the mud-drum and mud-arrester, becomes divested of the most of the mud or sand therein, which, together with the back direct current of the water through the boiler, greatly prevents the formations of incrustations upon the boiler.

From the above-described movements of the water and its great, if not entire, separation from extraneous matter, follow the results hereinbefore mentioned, namely, a more uniform temperature of the water throughout the boiler; economy in steam and fuel; durability of boilers; and an increased protection against explosions.

What I claim as my invention, and desire to secure by Letters Patent, is—

In combination, the water-circulating pipe C, mud-arrester E, and cocks *g g'*, substantially as and for the purpose set forth.

WILLIAM DILLON.

Witnesses:

J. BOONE McLURE,  
CURRAN MENDEL.