(No Model.)

L. A. CRAIG.

BOILER CLEANER.

No. 311,296. Patented Jan. 27, 1885.

Fig. 1.

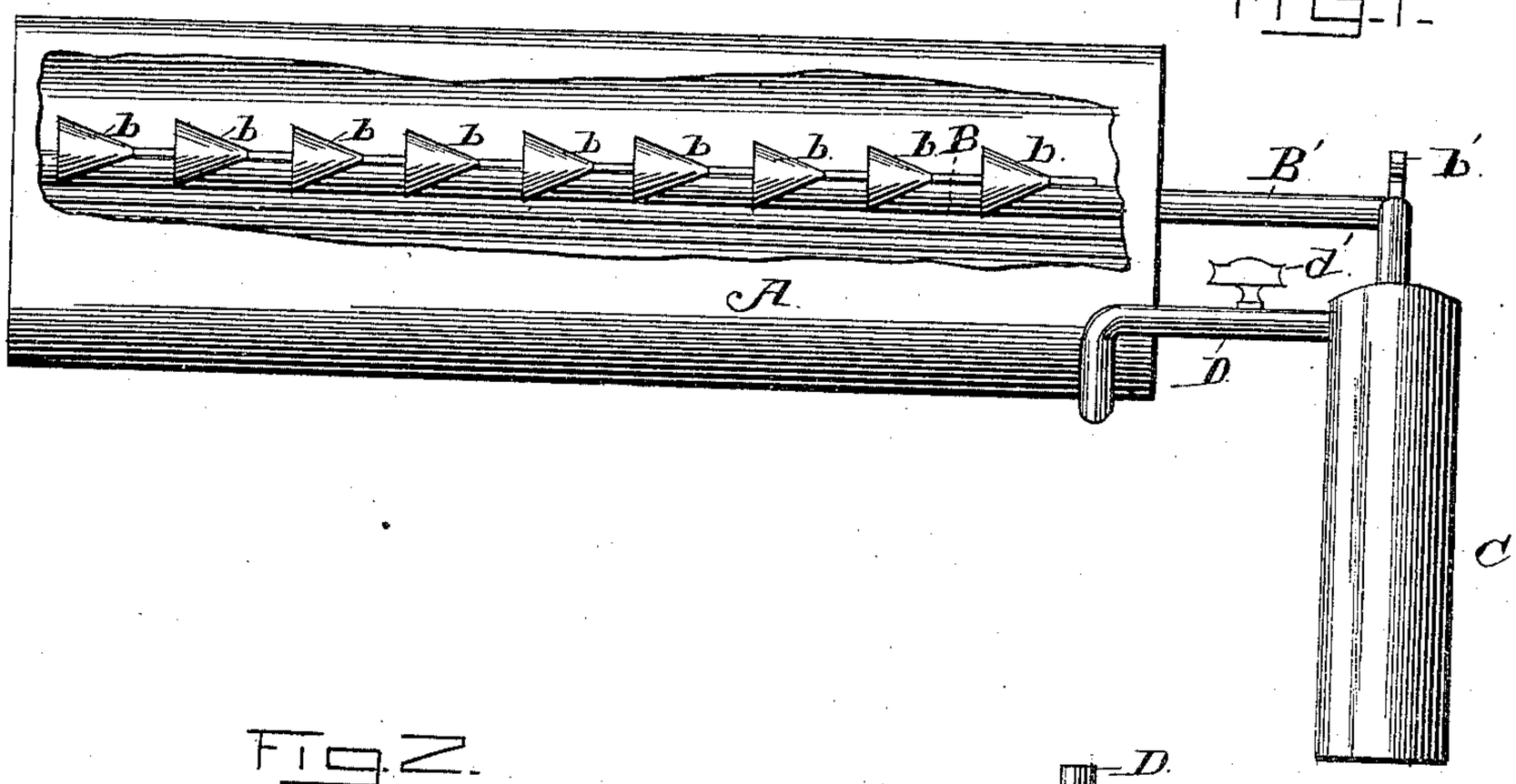


Fig. 2.

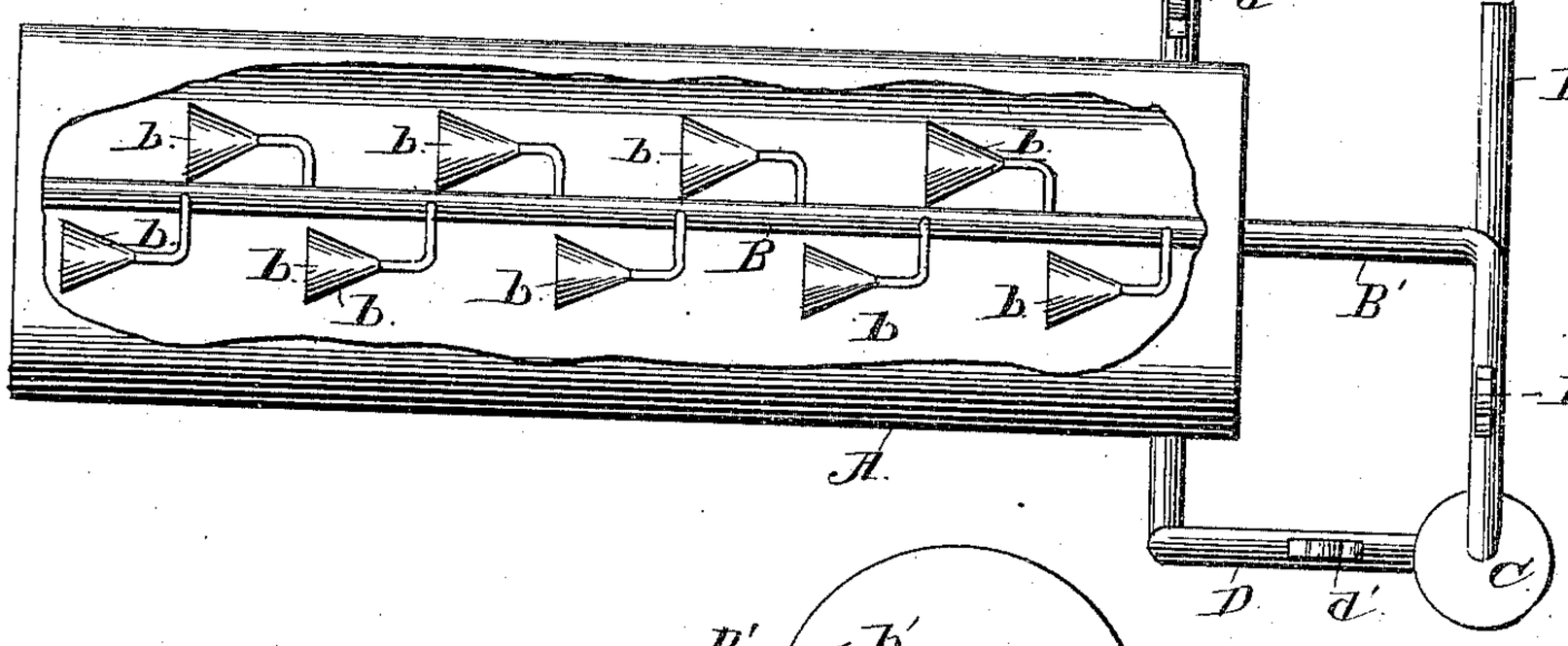
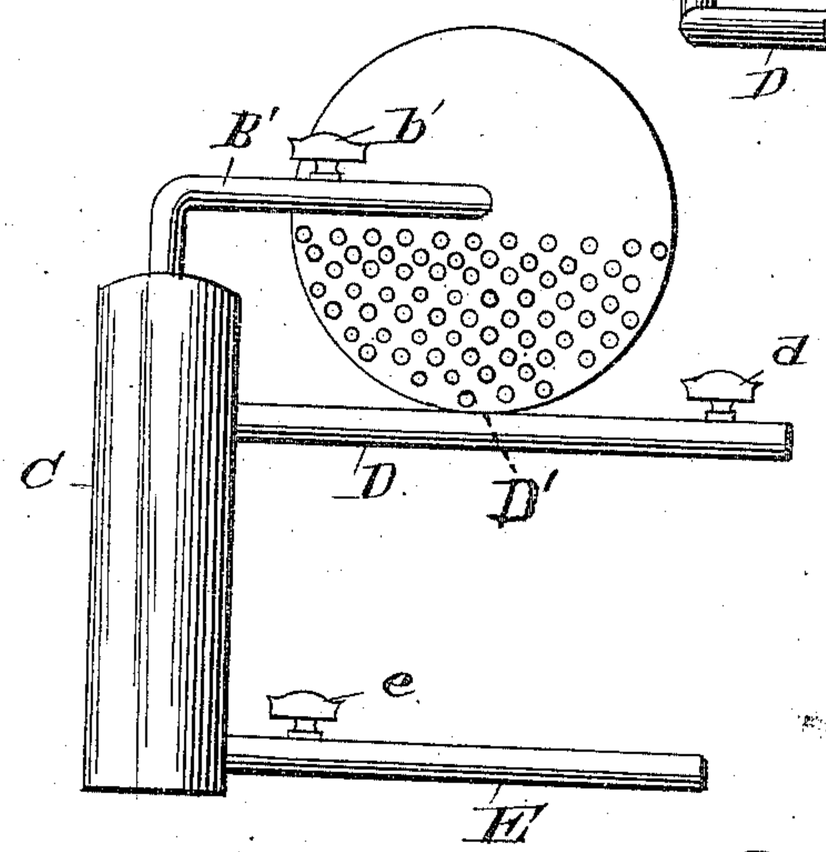


Fig. 3.



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

LLOYD A. CRAIG, OF WOODSON, ILLINOIS.

BOILER-CLEANER.

SPECIFICATION forming part of Letters Patent No. 311,296, dated January 27, 1885.

Application filed June 30, 1884. (No model.)

To all whom it may concern:

Be it known that I, LLOYD A. CRAIG, a citizen of the United States, residing at Woodson, in the county of Morgan and State of Illinois, have invented certain new and useful Improvements in Boiler-Cleaners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to boiler-cleaners, and has for its object a simple, inexpensive boiler attachment, whereby the sediment may be gathered in the boiler and delivered thence into a sediment-chamber while the boiler is being used for the generation of steam.

In the drawings, Figure 1 is a side view, Fig. 2 a top plan view, and Fig. 3 an end elevation, of a boiler provided with my improvement. In Figs. 1 and 2 the boiler is broken away.

The boiler A may be of any desired form or construction, and has extended longitudinally through it the conveying-tube B, which extends at B′ beyond the front or outer end of the boiler and opens into the sediment-chamber C at or near the upper end of such chamber, as shown. This tube B has secured on it within the boiler gathering-bells or funnels *b*, opening at their mouths toward the inner ends of the boiler, and connected at their opposite ends with and opening into the confluent or conveying tube. The number of these funnels may be varied at will; but I prefer to use a number of them, and to arrange same at close intervals, as clearly shown. A return-tube, D, opens at one end into the sediment-chamber, near the upper end of the latter, and has its other end carried to and opened into the boiler at about D′. The sediment-chamber is provided at its lower end with a discharge-tube, E. This tube E has a valve, *e*, so that the discharge may be opened or closed at will. A valve, *b′*, is arranged in the tube B′ between the boiler and sediment-chamber. A valve, *d*, is arranged in the extended end of the return-tube beyond the boiler, as shown, and a valve, *d′*, is arranged in tube D between the boiler and sediment-chamber.

It will be understood that the sediment-chamber and the several connecting-tubes are arranged at the outer end of the boiler, and that the opposite or inner end is where the fire or heat is applied.

The circulation of water in the boiler is naturally from the fire-place end to the outer end. This carries in such direction the sediment and lime in the water which the gathering devices collect and convey into the confluent tube, by which they are carried into the sediment-chamber, where the sediment is delivered and the water is returned to the boiler. This circulation is kept up by the heat, as will be understood. By closing valves *b′* and *d′* the sediment-chamber can be shut off and the water retained in the boiler. The boiler may be "blown" out in the usual manner, and by valves *b′ d d′*, the pipes B′ D may be also blown out, and the operation may be extended to the chamber C by opening valve *e* in pipe E.

By the described construction it will be seen the boiler is kept from deposits by the circulation constantly carrying the sediment, lime, and other foreign substances into the sediment-chamber, whence they may be drawn when accumulated in any considerable quantities.

It will be appreciated that were the confluent-tube simply perforated a considerable quantity of the sediment would be conveyed into the sediment-chamber; but I prefer in practice to use gathering devices substantially as described, as thereby better results are attained and a greater proportion of sediment, &c., conveyed into the chamber for receiving same. The return-pipe D opens into the boiler at D′, and is extended beyond the point of connection at D′, and is provided between the sediment-chamber and the point of connection D′ with a valve, *d′*, and between connection D′ and its extremity with a valve, *d*. By the valves *b′ d′* the sediment-chamber may be cut off from the boiler, and, by opening valve *d*, the boiler will have a discharge through the extremity of pipe D, as is desirable in blowing off, &c.; or the valve *d* may be closed and valves *b′ d′* opened to permit the circulation desirable for cleaning the boiler of sediment while in use.

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

1. The combination, with the boiler and the sediment-chamber, of a pipe connecting the boiler with the chamber and adapted to convey the sediment from the former to the latter, a return-tube extended from the sediment-chamber to and opening into the boiler, and provided with an extension projected beyond said point of connection, a valve arranged in the return-pipe between the sediment-chamber and the connection of such pipe with the boiler, and a valve arranged in the return-pipe between the extremity thereof and the said connection, substantially as set forth.

2. In a boiler-cleaner, the combination of the boiler, the confluent tube arranged therein and provided with gatherers *b*, and extended at B′ beyond the boiler, and opening into the sediment-chamber, the sediment-chamber, a valve arranged in extension B′ between the boiler and the sediment-chamber, a return-pipe, D, projected from the sediment-chamber, connecting at D′ with the boiler, and provided with an extension beyond said connection, a valve arranged in the extension of pipe D, and a valve, *d′*, arranged in said pipe D between the sediment-chamber and the boiler, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

LLOYD A. CRAIG.

Witnesses:
JNO. WM. BENNETT,
D. N. BAXTER.