(No Model.)

P. A. KIMBURG.

BOILER CLEANER.

No. 577,165. Patented Feb. 16, 1897.

Fig. 1.

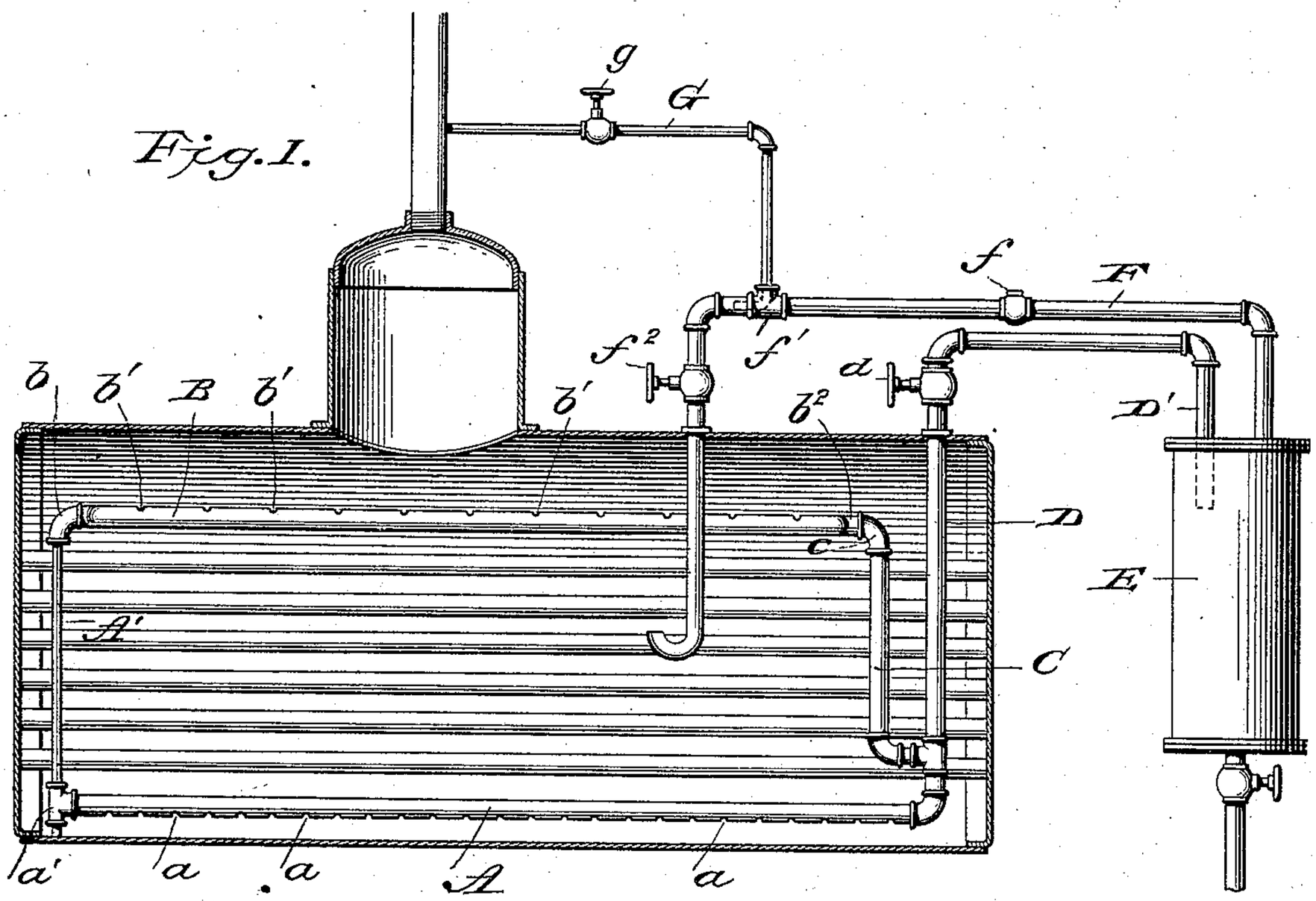
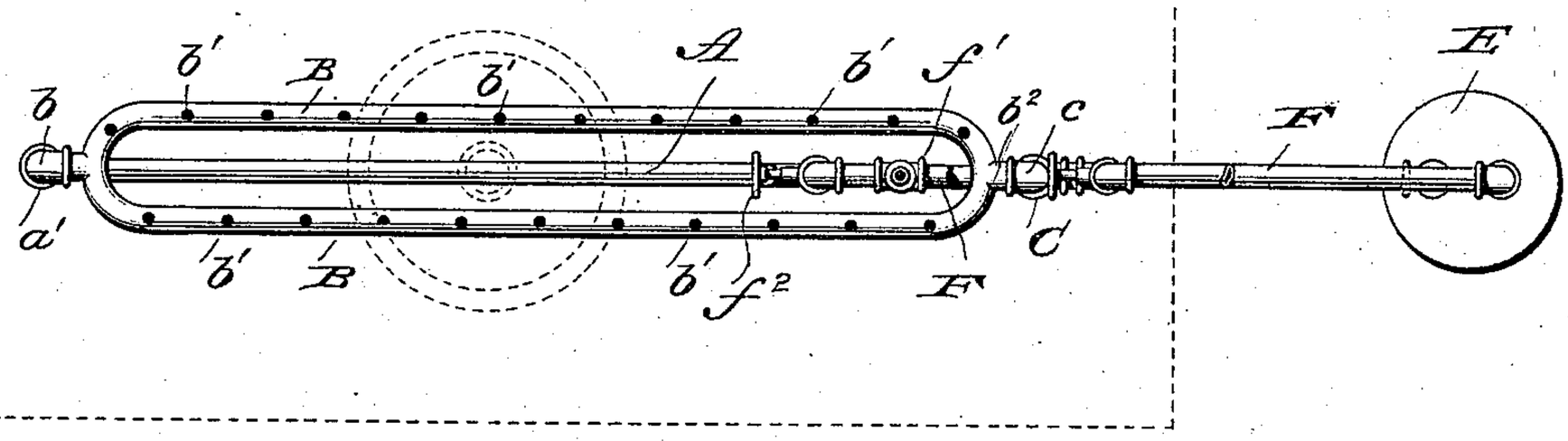


Fig. 2.



WITNESSES

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PETER A. KIMBURG, OF CHICAGO, ILLINOIS.

BOILER-CLEANER.

SPECIFICATION forming part of Letters Patent No. 577,165, dated February 16, 1897.

Application filed December 3, 1896. Serial No. 614,322. (No model.)

To all whom it may concern:

Be it known that I, PETER A. KIMBURG, a citizen of the United States of America, residing at Chicago, in the county of Cook 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 letters of reference marked thereon, which form a part of this specification.

The object of my invention is to provide a cheap and effective means for cleaning the mud and foam from steam-boilers; and it consists in the construction and combination of the parts, as will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation, partly in section, showing the application of my invention to a steam-boiler; and Fig. 2 is a plan view, the boiler being shown in dotted lines.

A designates a pipe which is located near the center of the boiler adjacent to the bottom thereof, and this pipe is provided in its under side with a series of perforations *a a*. At one end the pipe is provided with a coupling *a'*, adapted to receive a tube or rod A', extending through said coupling to the bottom of the boiler, the other end of the said tube or rod projecting upward to a coupling *b*, to which it is attached. The coupling *b* is secured to pipes B B, which are secured to each other at their ends and provided in their upper sides with perforations *b'*. At one end of the pipes B B is an extension b^2, having an elbow-coupling *c*, to which a pipe C is attached, said pipe extending downward and being connected by a suitable coupling to an outtake-pipe D. This outtake-pipe extends from the pipe A through the top of the boiler and is provided beyond the boiler with a cut-off valve *d*.

E designates a tank or mud-drum into which the outtake-pipe D or the extension D' thereof enters, said extension D' depending into the tank a considerable distance.

F designates a pipe which extends from the upper portion of the mud-drum or tank E and is provided with a suitable check-valve *f* and with a T-coupling *f'*. Between the T-coupling and the boiler is a section of pipe which carries a cut-off valve f^2, and the end of the pipe within the boiler is bent upward. The mud-drum or tank E is provided at its lower end with a blow-off pipe having a stop-cock.

The device so far described provides a complete apparatus for removing scum and mud from the boiler, as in practice the cold water is let into the boiler near the bottom, and the difference in temperature will create an expansion of the water within the pipe, so there will be an indraft or suction into the pipes A and B through the perforations therein which will cause the water with the impurities contained in the scum and the mud which is drawn into the pipe A to pass upward in the pipe D and be deposited in the tank or mud-drum, in which it will settle. The steam and water will pass back into the boiler through the pipe F and will be discharged in an upward direction. The check-valve *f* will prevent any circulation in an opposite direction. When it is desired to blow off the contents of the tank or mud-drum, it can be done by opening the valve in the blow-off pipe at the bottom thereof and the sediment and impurities can be conveyed by said pipe to a sewer.

The circulation may be assisted, and in some instances it is desirable, by providing a pipe G, which will take dry steam from the steam-dome of the boiler, or from a point beyond said dome, and lead it into the pipe F on that side of the check-valve farthest from the tank. In practice this pipe G is provided with a cut-off valve *g*, and its lower end enters the T-coupling *f'*, its end being bent and reduced in size, if desired, to provide a steam-injector, the end of which is preferably to one side of the coupling.

When live steam is let into the pipe F, the circulation will be materially assisted.

It will be noted that the tube or rod A' supports one end of the pipes A and B, while the other end is supported by the pipe D. The pipes B are positioned in the boiler at the normal water-level.

I am aware that prior to my invention it has been proposed to provide a steam-boiler cleaner consisting of pipes with perforations,

said pipes being so arranged that one is at the bottom of the boiler and the other at the normal water-level, the pipes being connected so that by opening a suitable valve the scum and mud which may have collected in the boiler can be blown off. I therefore do not claim such construction, broadly; but

What I do claim is—

1. In a boiler-cleaner, the combination, of the perforated pipes A and B supported within the boiler substantially as shown, a pipe D connected to the pipe A, and a pipe C extending from the pipes B to the pipe D to which it is connected adjacent to the pipe A, the pipe D serving to support one end of the pipes A and B; a mud-drum E with which the pipe D communicates, and a pipe F also extending from said mud-drum to a point within the boiler below the pipes B, said pipe F having a check-valve; together with a pipe G which is adapted to take dry steam from the boiler and discharge it within the pipe F, the parts being organized substantially as shown.

2. In a boiler-cleaner, the combination, of a perforated pipe A, a pair of parallel pipes B connected to each other, a vertical pipe D located near one end of the boiler, a pipe C extending from a central extension b^2 of the pipes B B downward and upward to the pipe D at a point adjacent to the pipe A, a support A′ connected to the ends of the pipes A and B, said support resting upon the bottom of the boiler, the hereinbefore-mentioned pipe D having a valve; a mud-drum or tank to which the pipe D is connected; together with a pipe F extending from the drum into the boiler, said pipe being provided with a check-valve, and an interposed steam-injector which is connected to the boiler by means of a pipe G, substantially as shown.

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

PETER A. KIMBURG.

Witnesses:
L. W. MAY,
M. SPITZER.