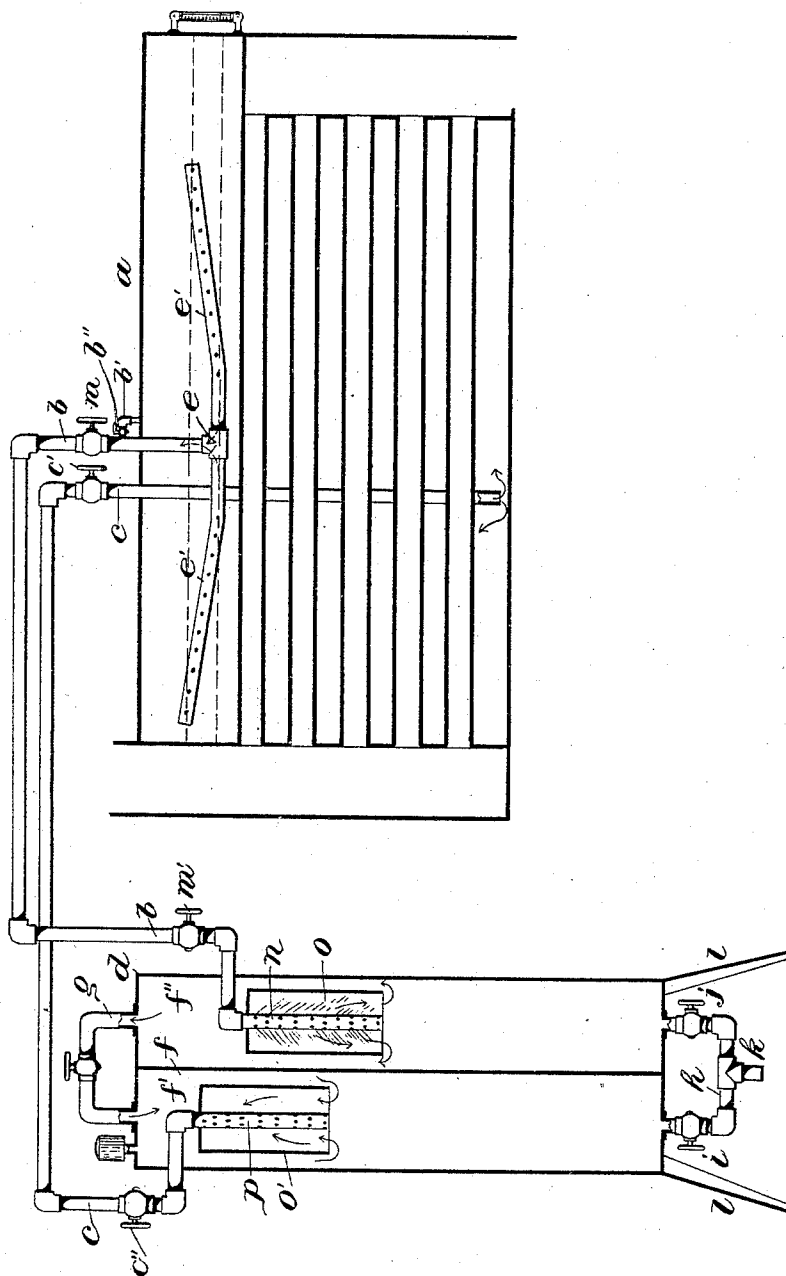


(No Model.)

J. Q. COOK.
BOILER CLEANER.

No. 474,369.

Patented May 10, 1892.



Attest;
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Attys

UNITED STATES PATENT OFFICE.

JEROME Q. COOK, OF HUNTINGTON, INDIANA.

BOILER-CLEANER.

SPECIFICATION forming part of Letters Patent No. 474,369, dated May 10, 1892.

Application filed January 13, 1892. Serial No. 417,944. (No model.)

To all whom it may concern:

Be it known that I, JEROME Q. COOK, a citizen of the United States, residing at Huntington, in the county of Huntington and State of Indiana, have invented certain new and useful Improvements in Boiler-Cleaners; and I do 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 drawing, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to that class of boiler-cleaners in which the boiler is provided with circulating-pipes leading to an external mud-drum.

The object of my invention is to provide means which will be more convenient, simple, effective, and desirable than those heretofore in use; and to this end my invention consists in the peculiar features and combinations of parts more fully described hereinafter, and pointed out in the claims.

The accompanying drawing represents a sectional elevation of my complete invention as applied to a stationary boiler.

The reference-letter *a* represents the boiler, which is provided with external circulating-pipes, comprising a receiving or inlet pipe *c*, leading from an exterior mud-drum *d* to near the bottom of the boiler and an exterior discharge-pipe *b* leading from the upper part of the boiler to the mud-drum. The end *e* of the discharge-pipe, which is within the boiler, is provided with oblique branching arms *e'*, which extend upward across the space occupied by the rise and fall of the water in the boiler. These arms are provided with perforations to receive the scum or extraneous matter in the water and carry it off through the discharge-pipe *b* to the mud-drum.

The mud-drum consists of a vertical cylinder containing a vertical partition *f*, forming two separate compartments *f'* *f''*, communicating with each other at the top by an exterior valved pipe *g* and at the bottom by an exterior U-shaped mud-discharge pipe *h*, having valves *i* and *j* and a central vertical pipe *k*. Legs *l* support the drum. An oil-cup to feed oil into the boiler is located on top of

the mud-drum. The discharge-pipe *b* is provided with two valves *m m'*, and enters the side of the mud-drum, after which it extends downward. This downward extension *n* is perforated to empty into one of the compartments in small streams. A vertical cylinder *o*, having an open bottom and closed top, surrounds this perforated end, in order to effect a better precipitation of extraneous matter into the bottom of the drum by forcing the water downward before it begins to ascend. The end *p* of the receiving-pipe, which is located in the opposite compartment *f'*, is also perforated and surrounded with a similar cylinder *o'* for forcing the water to travel downward from the top of the drum before it begins to ascend. The end of this pipe is higher than that of the discharge-pipe *b*, in order to effect the circulation indicated by arrows. This inlet-pipe is provided with two valves *c' c''*.

The discharge-pipe *b* is provided with a steam-pipe *b'*, leading from the top of the boiler into the side of the pipe and controlled by a valve *b''*. This pipe is to increase circulation by admitting a jet of live steam when desired.

From the foregoing construction it will be seen that water laden with sediment or extraneous matter is drawn off at the surface through the perforations in the branching pipes *e'*, from whence it is carried upward and out into one of the compartments in the mud-drum. Leaving the pipe through the perforations in its downward end, it empties into the cylinder *o*, is conveyed downward, thence upward, thence out through pipe *g*, and down into the opposite compartment *f'*, where it is made to pass upward into cylinder *o'* and back to the bottom of the boiler *via* inlet-pipe *c*. During the passage of the water through the mud-drum the extraneous matter is deposited, and the cleansed water is carried back to the lower part of the boiler. In this way a constant circulation is maintained and the water greatly cleansed and deposits greatly lessened.

The mud in the bottom of the mud-drum can be easily and quickly removed by opening one of the blow-off valves in the pipe *h*.

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

1. In a boiler-cleaner, a boiler provided with a receiving-pipe emptying near its bottom and a discharge-pipe provided with obliquely-perforated branching arms, in combination with an exterior mud-drum divided into compartments, being connected by pipes, the ends of said receiving and discharge pipes entering said compartments and provided with open-bottom cylinders, and a steam-pipe entering said discharge-pipe, whereby circulation is increased, all arranged and adapted to operate in the manner substantially as described.
2. In a boiler-cleaner, receiving and discharge pipes leading to and from a mud-drum having two compartments, the end of the receiving-pipe entering one compartment and the end of the discharge-pipe leading from the other compartment, both of said ends being perforated and surrounded by open-bottom vertical cylinders, in the manner and for the purpose described.
3. In a boiler-cleaner, the combination of a boiler provided with receiving and discharge pipes leading to and from an exterior mud-drum, and a vertical partition in the drum, dividing the latter into two compartments, said compartments being connected at the top by a valved exterior pipe and at the bottom by a similar pipe, as and for the purpose described.
4. In a boiler-cleaner, an exterior mud-drum divided into two compartments, and receiving and discharge pipes leading to a boiler, the ends of said pipes in the compartments being perforated and surrounded with open-bottom cylinders, the discharge-pipe entering the compartments at a point lower than that of the receiving-pipe and exterior pipes connecting the compartments, substantially as described.

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

JEROME Q. COOK.

Witnesses:

W. A. BRANYAN,
J. E. MOYER.