A. W. BISHOP.
Boiler Cleaner.

No. 201,986. Patented April 2, 1878.

Fig. 1.

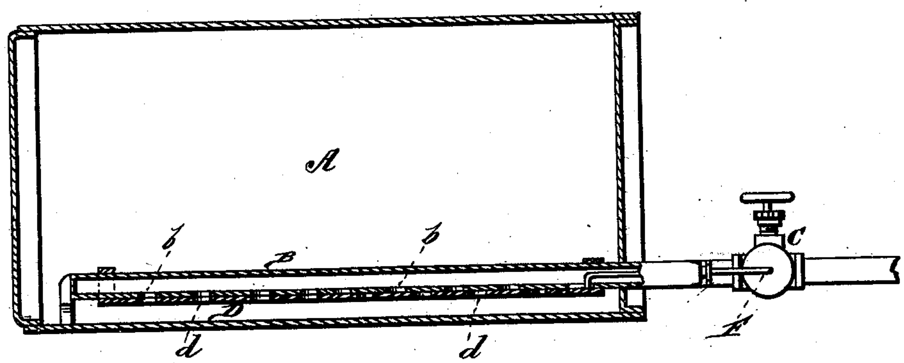
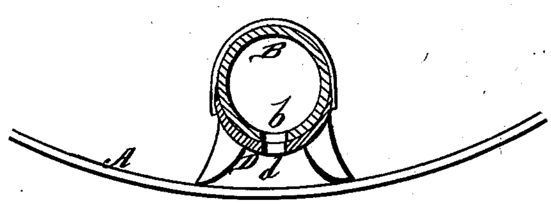


Fig. 2.



WITNESSES
Robert Everett,
Jas. J. Sheehy.

INVENTOR.
Abner W. Bishop.
Gilmore Smith & Co.
ATTORNEYS.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ABNER W. BISHOP, OF BEREA, OHIO.

IMPROVEMENT IN BOILER-CLEANERS.

Specification forming part of Letters Patent No. **201,986,** dated April 2, 1878; application filed March 2, 1878.

To all whom it may concern:

Be it known that I, ABNER W. BISHOP, of Berea, in the county of Cuyahoga and State of Ohio, have invented a new and valuable Improvement in Boiler-Cleaners; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a longitudinal vertical section of my boiler-cleaner, and Fig. 2 is a sectional detail thereof.

My invention relates to that class of boiler-cleaners in which a pipe, perforated with holes on the under side, runs the entire length of the boiler; and the nature of my invention consists in providing such pipe with a slide having holes to correspond with the holes in one-half the pipe at a time, so that by moving the slide in one direction one-half the number of holes in the pipe will be uncovered, and by moving the slide in the opposite the other holes will be uncovered, as will be hereinafter more fully set forth.

The annexed drawings, to which reference is made, fully illustrate my invention.

A represents a horizontal steam-boiler, provided with an interior pipe, B, running the entire length thereof. This pipe B is slightly elevated above the bottom of the boiler, and is connected with the blow-off pipe or cock C. In the under side of the pipe B are numerous holes, *b b*, for blowing off all sediment and impurities that have settled in the boiler.

For a proper working of this class of boiler-cleaners, the combined area of the holes *b* in the pipe B should be equal to the area of the opening in the blow-off, so that each hole will be made to perform its equal function. When thus made, the holes *b* are necessarily very small; and I propose to obviate this difficulty by blowing off one-half of the boiler at a time, thereby allowing me to make the holes of twice the size and yet retain the proper proportion with the area of the blow-off.

To this end I provide the pipe B with a slide, D, having perforations *d d*, and operated by means of a packed rod, F, through the boiler-head. The holes *d* are drilled or otherwise made in the slide in such a manner that, when drawn out, one-half of said holes will correspond with the holes in one-half of the pipe, and when the slide is moved in, the other half of the holes in the slide will correspond with the holes in the other half of the pipe. I am therefore enabled to make the holes in the pipe of twice the size. This gives it more force, and will blow out larger pieces of scale or solid substances.

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

In combination with a boiler, A, interior perforated pipe B, and blow-off C, the slide or cut-off D, having perforations *d* arranged to uncover the holes in one-half of the pipe only at a time, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

ABNER W. BISHOP.

Witnesses:

E. H. PHILLIPS,

JOSEPH NICHOLS.