

No. 801,857.

PATENTED OCT. 17, 1905.

W. EICHELBERGER.
SOOT CLEANER FOR BOILERS.
APPLICATION FILED DEC. 1, 1904.

Fig. 1.

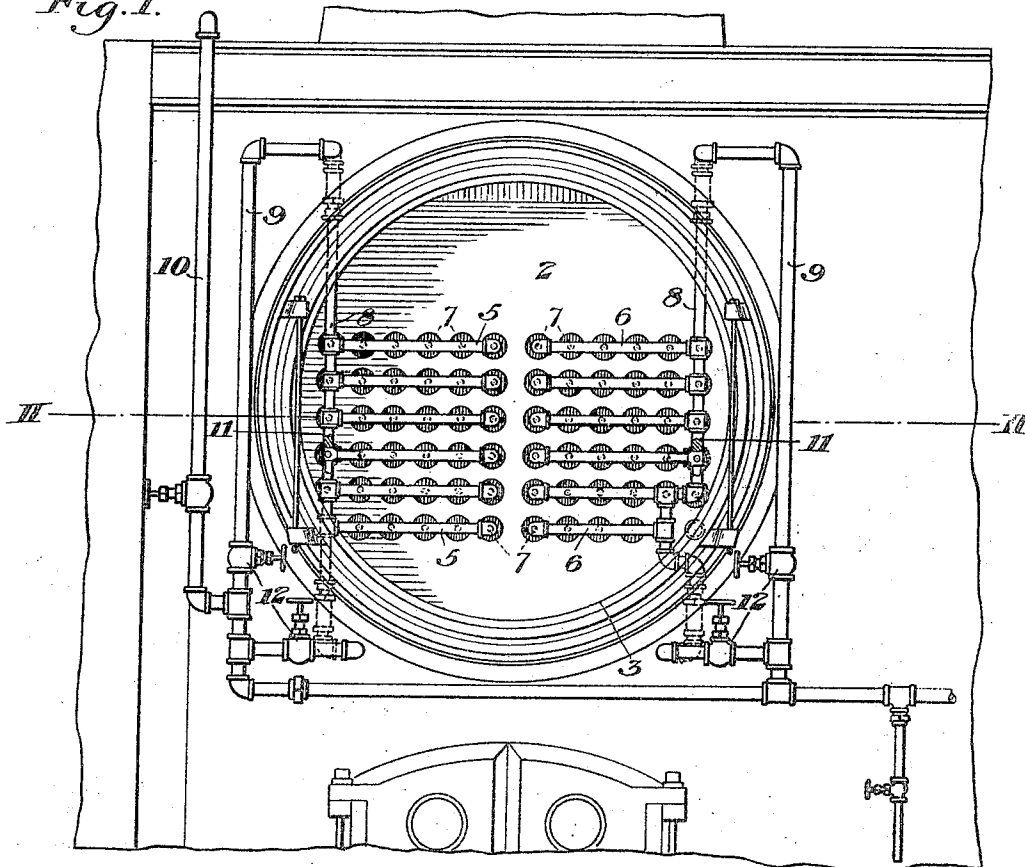
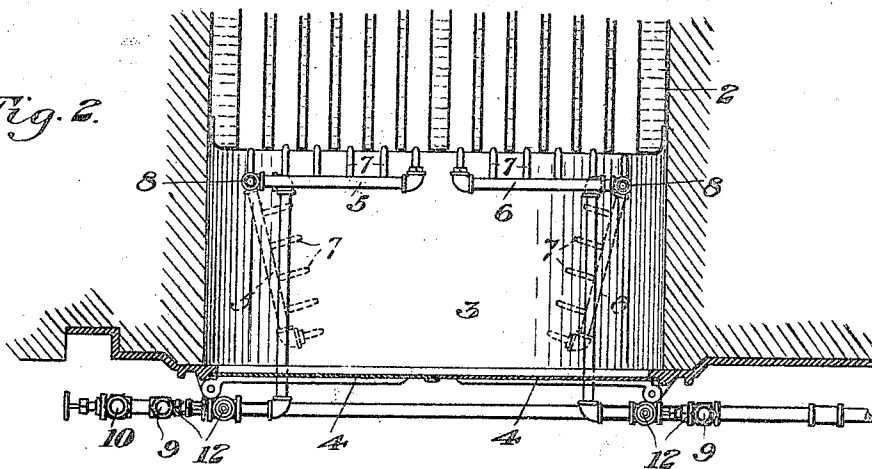


Fig. 2.



WITNESSES

L. A. [Signature]
E. B. Blanning

INVENTOR

William Eichelberger
by his Attorney
Barrett & Byrnes

UNITED STATES PATENT OFFICE

WILLIAM EICHELBERGER, OF DUBOIS, PENNSYLVANIA, ASSIGNOR TO
VULCAN SOOT CLEANER COMPANY, OF DUBOIS, PENNSYLVANIA,
A CORPORATION OF PENNSYLVANIA.

SOOT-CLEANER FOR BOILERS.

No. 801,857.

Specification of Letters Patent.

Patented Oct. 17, 1905.

Application filed December 1, 1904. Serial No. 235,044.

To all whom it may concern:

Be it known that I, WILLIAM EICHELBERGER, of Dubois, Clearfield county, Pennsylvania, have invented a new and useful Improvement in Soot-Cleaners for Boilers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of a boiler constructed in accordance with my invention, the doors of the smoke-box being removed; and Fig. 2 is a horizontal section on the line II II of Fig. 1.

In the use of steam-boilers there is a great loss of efficiency by reason of the coating of the heating-surfaces with soot, which being a non-conductor of heat prevents the rapid transfer of heat from the furnace to the water. This makes it desirable to clean the heating-surfaces frequently; but with a boiler unprovided with special means for doing so it is necessary to put the boiler out of use during the cleaning operation and the work is extremely dirty and difficult, so that being distasteful to the fireman it is often neglected.

The purpose of my invention is to provide means by which this work can be done rapidly and with little labor and cost and while the boiler is still in use, so that the work of cleaning being rendered easy the boiler can always be kept in a condition of maximum efficiency.

In the accompanying drawings, 2 is a fire-tube boiler, and 3 is a smoke-box at the end of the boiler-setting provided with the usual doors 4.

5 6 are steam-pipes which are movable toward and from the boiler-flues and are fitted with steam-nozzles 7 7, adapted to register with the flues and to discharge steam thereinto. For the purpose of moving the pipes toward and from the flues I preferably swivel them at 8 8 with vertical branch pipes which derive their steam from the branches 9 9 of a steam-supply pipe 10. The pipes 5 6 and the swivel connections are all mounted within the smoke-box, and for the purpose of enabling some of the nozzles 7 to be used without the others I prefer to interpose a plug or obstruction 11 in the swivel-pipes 8, so that by manipulation of the valves 12 12 steam may be

caused to enter either the upper rows of pipes 5 or the lower set of these pipes on either side of the smoke-box.

When the device is not in use, the pipes 5 6 are drawn back within the smoke-box into the position shown by dotted lines in Fig. 2. When it is desired to clean the flues, these pipes are swung toward the end of the boiler into the position shown in full lines, and then after shutting the doors of the smoke-box steam is blown through a portion of the nozzles into the flues. This steam passing in strong jets from the nozzles loosens the soot from the interior of the tubes and blows it back into the combustion-chamber at the back end of the boiler, whence a portion of it falls into the combustion-chamber and can be removed by suction or in any other desirable way. The greater portion of the dislodged soot, however, is caught by the draft of the furnace and is carried back through the other flues into the smoke-stack. Thus by blowing the steam successively into the different groups of flues all of them may be cleaned from soot. After this has been done the pipes may be retracted somewhat from their working position, and jets of steam can then be discharged upon the end of the boiler for the purpose of dislodging the soot therefrom. All this can be done without interrupting the operation of the boiler and the generation of steam, and as the apparatus is extremely simple and efficient it can be employed without entailing any disadvantages.

Within the scope of my broader claims the steam-pipes may be stationary instead of being movable, as shown in the drawings, since

What I claim is—

1. A soot-cleaner for boilers having a pivoted series of nozzles normally out of alignment with the boiler-flues and arranged to be simultaneously rotated about a fixed axis and projected into the ends of said flues; substantially as described.

2. A soot-cleaner for boilers having a series of nozzles so mounted as to be simultaneously rotated about a fixed axis into the ends of the boiler-flues and means for moving said nozzles into and away from the flues; substantially as described.

3. A boiler having a smoke-box, and a soot-cleaner comprising a series of steam-nozzles mounted on a fixed axis in the smoke-box and

arranged to be swung into and out of a plane parallel to the boiler-head; substantially as described.

4. A boiler-flue cleaner comprising nozzles 5 so mounted as to be moved about an axis into the ends of the boiler-flues, and means for admitting steam successively into sections of the nozzles; substantially as described.

5. A soot-cleaner comprising nozzles so 10 mounted on pivot-pipes set in the smoke-box of a boiler as to be moved into the ends of the boiler-flues; substantially as described.

6. A soot-cleaner comprising nozzles so 15 mounted on swiveled pipes set in the smoke-box of a boiler as to be moved into the ends of the boiler-flues, and valves for admitting steam into successive portions of the nozzles; substantially as described.

7. A steam-jet soot-cleaner mounted in the smoke-box of a boiler and having nozzles ar- 20 ranged to enter the ends of the boiler-flues, and means for admitting steam to different sets of nozzles successively while the smoke-box is closed; substantially as described.

8. A soot-cleaner comprising nozzles com- 25 municating with pivot-pipes set in the smoke-box of a boiler and movable into the ends of the boiler-flues, and means for admitting steam to different sections of the pivot-pipes and nozzles; substantially as described. 30

In testimony whereof I have hereunto set my hand.

WILLIAM EICHELBERGER.

Witnesses:

JOHN MILLER,
H. M. CORWIN.