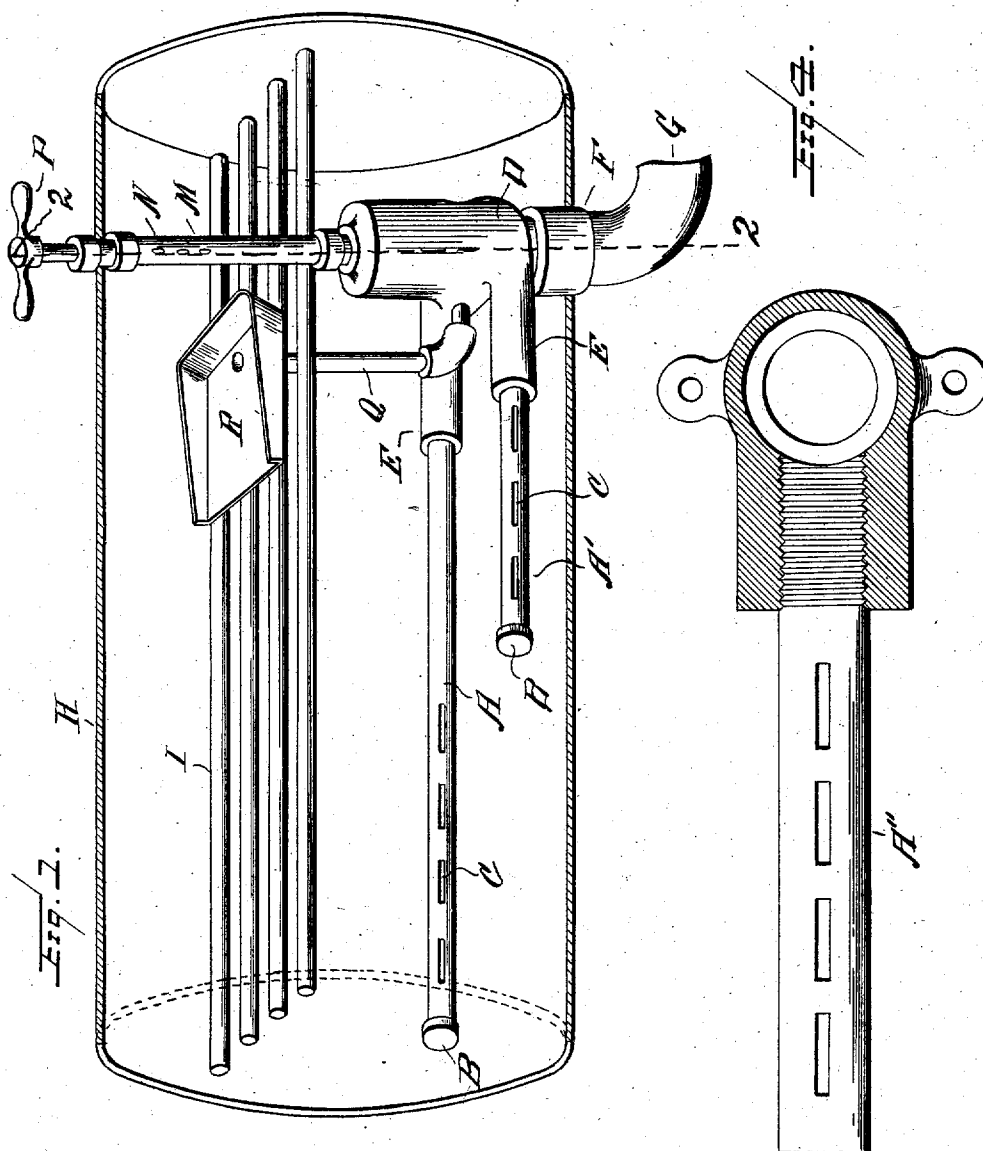


No. 884,728.

PATENTED APR. 14, 1908.

I. C. GRAY.
CLEANER FOR STEAM BOILERS.
APPLICATION FILED DEC. 13, 1907.

2 SHEETS—SHEET 1.



WITNESSES

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George B. Wood

INVENTOR

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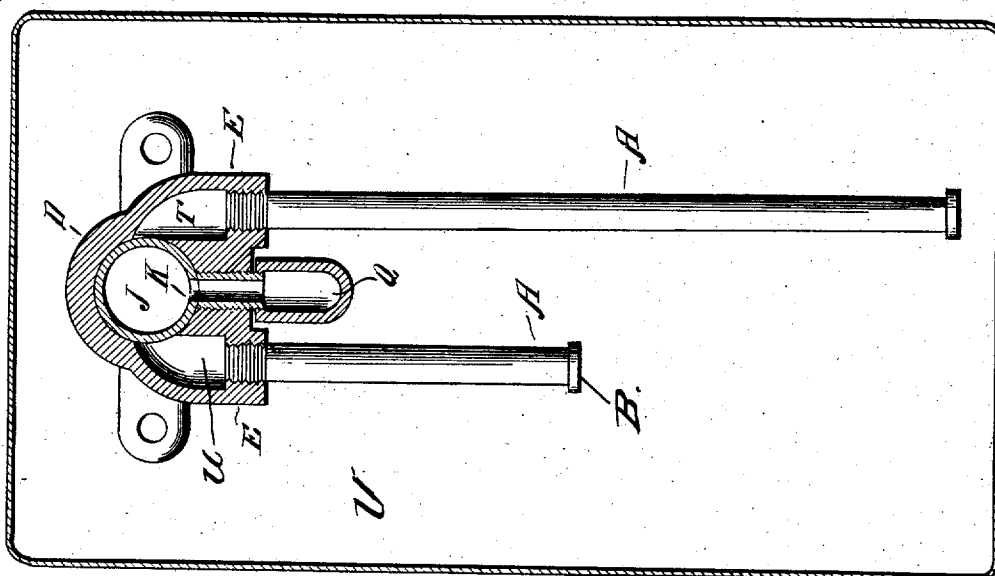
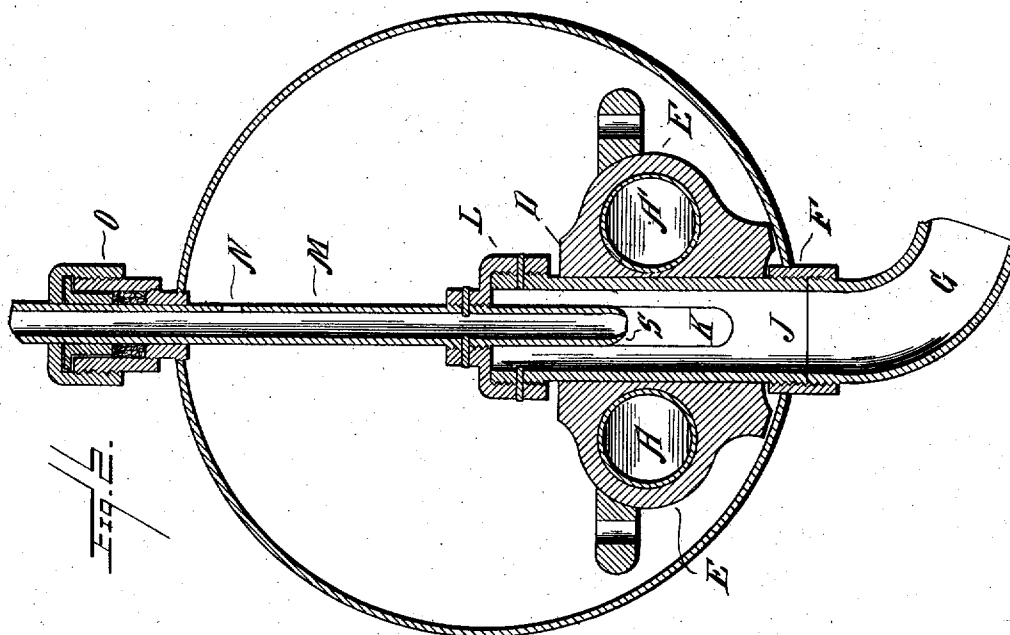
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UNITED STATES PATENT OFFICE.

ISAAC C. GRAY, OF LOGANSFORT, INDIANA, ASSIGNOR TO AUTOMATIC BOILER CLEANER COMPANY, OF LOGANSFORT, INDIANA, A CORPORATION.

CLEANER FOR STEAM-BOILERS.

No. 884,728.

Specification of Letters Patent.

Patented April 14, 1908.

Application filed December 13, 1907. Serial No. 406,274.

To all whom it may concern:

Be it known that I, ISAAC C. GRAY, of Logansfort, in the county of Cass and State of Indiana, have invented certain new and useful Improvements in Cleaners for Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of the interior of the boiler, showing my cleaner in place. Fig. 2 is a vertical section through the line 2—2 of Fig. 1. Fig. 3 is a plan view partly in section, and Fig. 4 is a sectional plan view of a modification of the bottom cleaner tube.

As shown in Figs. 1, 2 and 3, my cleaner is provided with two tubes A and A', located in the bottom of the boiler, one extending practically the whole length of the boiler and the other about midway of the length. The two tubes are preferably provided with caps B at their ends and with a number of perforations C through which the sediment enters the same. The two tubes are threaded into a four way casting shown as a whole at D, which is provided with the U-shaped part having the branches E into which the tubes A A' are secured. This casting is fitted by proper connections to the ordinary blow-off of old boilers, as shown at F, and a pipe G leads to a sewer or drain.

The boiler, as shown, may be of any ordinary type, and is provided with the usual exterior shell H and tubes I. The blow-off tubes are located at the lowest level of the boiler and the casting D is arranged vertically between the tubes and extends upwardly to the exterior of the boiler, where it is provided with a handle for operating the blow-off valve, and at the water line above the tubes is provided the skimmer for drawing off the scum, both the bottom blow-off tubes and the skimmer being operated by a single valve and the aforesaid handle. In the casting D is located the blow-off valve J, which consists of a tubular piece provided with the single port K.

The valve J passes out through the top of D and is provided with gland L which serves to back it tightly. A tube M, which is provided with steam ports N conveniently located above the water line, passes out through the top of the boiler through a stuffing box

O, is provided with the handle P for operating the valve. Between the two branches E of the casting D there is a pipe Q leading to the skimmer R. The pipe M extends into the valve J some distance, as shown at S, to provide for an ejector action.

The operation of my device is as follows: The valve J is turned by means of the handle P so that the port K communicates with the port T leading to pipe A and steam entering pipe M through ports N forms a jet which draws the sediment from the extremity of the boiler and forces it out through the bottom blow-off valve. The further part of the boiler being thus cleaned, the valve is turned so that port K communicates with opening U leading to pipe A' and the sediment is blown from the middle and front of the boiler. By giving the valve a further turn, the port K is placed in communication with the port V leading to pipe Q and the surface scum is blown off. A still further movement of the valve closes the port K so that all communication with the interior of the boiler and the bottom blow-off is discontinued.

In Fig. 4 I have shown a modification in which a single tube A' is used, this form being particularly adapted to small or short boilers.

Having thus particularly described my invention so as to enable those skilled in the art to make the same, what I desire to claim is as follows:

1. In a steam boiler, the combination of a casting secured to an outlet in the bottom of the boiler, said casting having two branches; a short and a long blow-off pipe lying near the bottom of the boiler secured to said branches; a pipe connected to said casting leading to a surface skimmer, a hollow rotary valve located in said casting and provided with a single port adapted to communicate successively with each of said pipes, and steam jet pipe entering said valve and secured thereto, and means exterior of the boiler for turning said pipe and valve.

2. In a steam boiler, the combination of a bottom blow-off connection, cleaner pipes located in the bottom of the boiler; a valve casting to which said pipes are connected; a pipe and surface skimmer also connected to said casting; a valve in said casting adapted to open communication with each of said pipes; a steam jet pipe leading to said valve,

and means exterior to the boiler for operating said valve.

3. In a steam boiler, the combination of a blow-off pipe located in the bottom of the boiler, a pipe and connected skimmer located on the surface of the water in the boiler, a single valve casting to which said pipes connect, a valve in said casting for successively effecting communication between said pipes

and the exterior of the boiler; a steam jet 10 pipe communicating with said valve, and means for operating said valve.

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

ISAAC C. GRAY.

Witnesses:

GEORGE W. WALTERS,
ELIZABETH HOMBURG.