No. 861,053.

PATENTED JULY 23, 1907.

E. H. REITER.

BOILER CLEANER.

APPLICATION FILED AUG. 10, 1906.

2 SHEETS—SHEET 1.

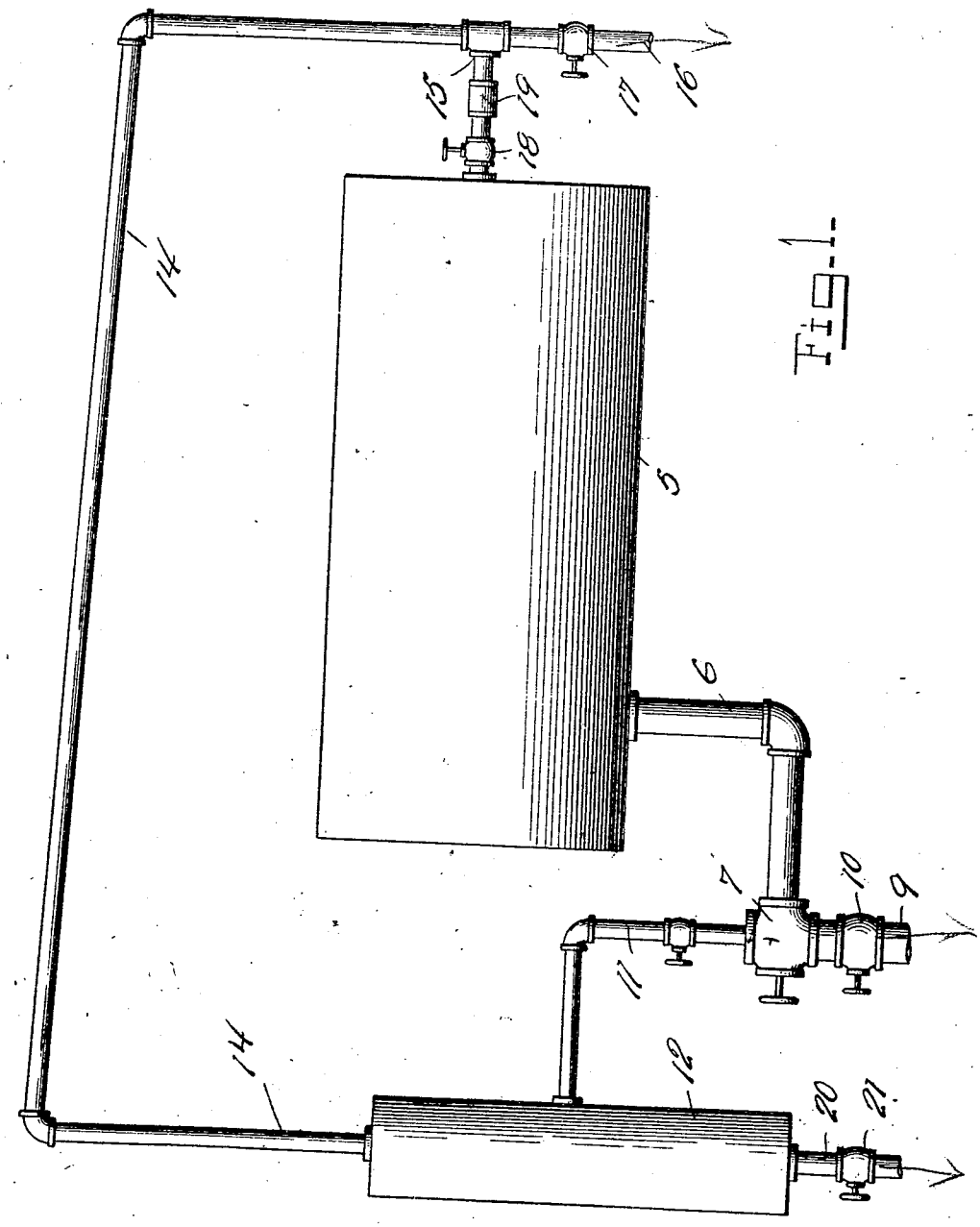


FIG. 1

Witnesses

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122. LIQUID HEATERS & VAPORIZERS.
Cleaning, Trapped circuit,
Surface & bottom exit.

Examiner.

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2 SHEETS—SHEET 2.

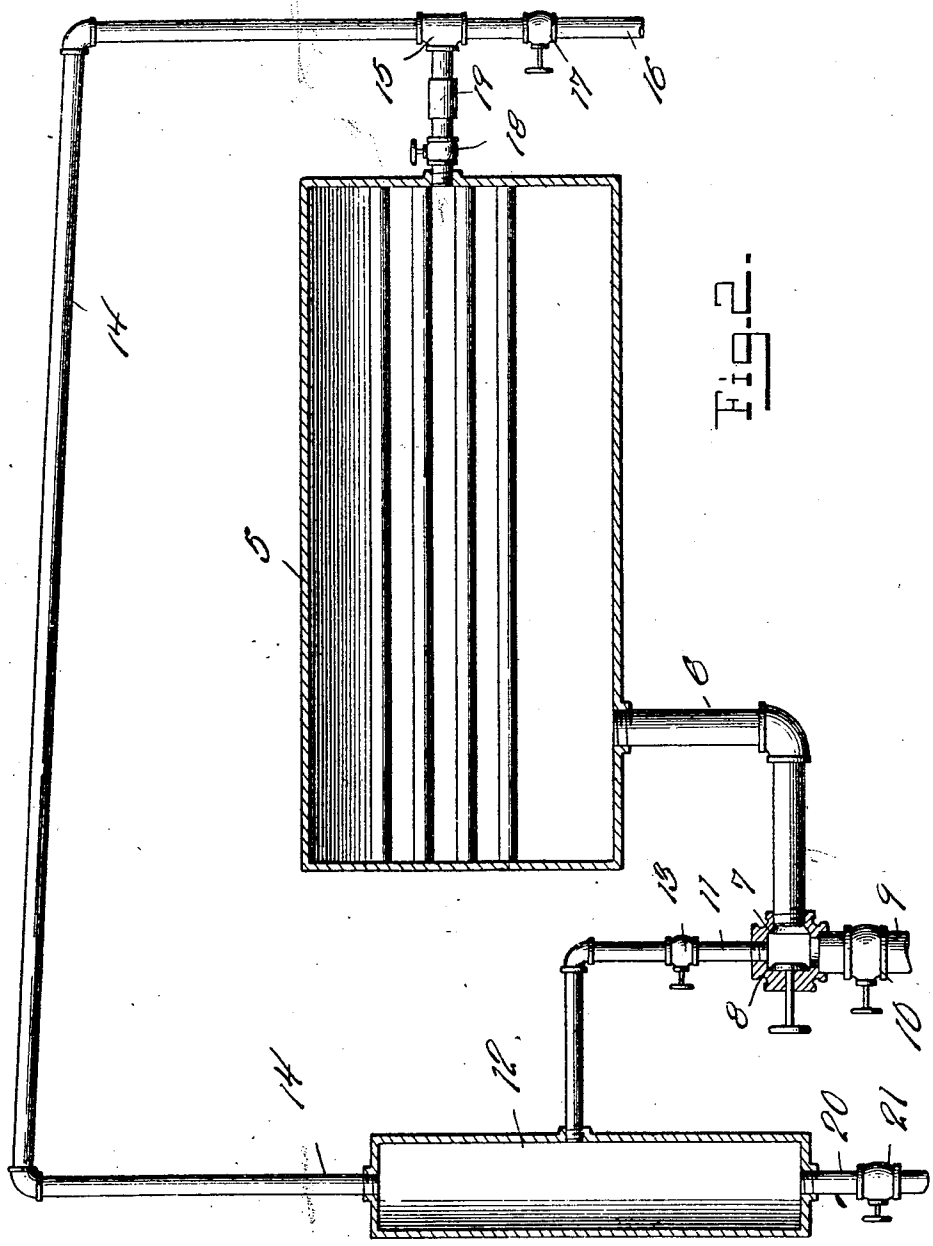


Fig. 2.

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UNITED STATES PATENT OFFICE.

ELZA H. REITER, OF GALESBURG, ILLINOIS.

BOILER-CLEANER.

No. 861,053. Specification of Letters Patent. Patented July 23, 1907.

Application filed August 10, 1906. Serial No. 330,056.

To all whom it may concern:

Be it known that I, ELZA H. REITER, a citizen of the United States, residing at Galesburg, in the county of Knox, 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.

This invention relates to boiler cleaners and has for its object to provide a novel device for removing sediment and the like from boilers without the use of scrapers or other tools, the cleaning being effected by drawing the water from the boiler into a precipitating tank and thence returning the water to the boiler, this circulation being effected by the pressure in the boiler.

A novel feature of the invention resides in the fact that the water is withdrawn from the bottom of the boiler at one end thereof and is returned through the opposite end thereof.

With the above and other objects in view, the invention consists in the construction and arrangement of parts shown in the accompanying drawings, in which

Figure 1 is a view in elevation of the cleaning system. Fig. 2 is a vertical longitudinal sectional view therethrough.

Referring more specifically to the drawings, the numeral 5 denotes a boiler of any desired construction and 6 a pipe which leads from the bottom of the boiler at one end thereof and is connected at its end with a valve casing 7 in which is located a plug valve 8. A pipe 9 leads from this valve, is open at its end, and is provided with a cut-off valve 10. A pipe 11 also leads from the valve casing and communicates at its end with a tank 12, there being a cut-off valve 13 interposed in the pipe 11 for a purpose to be hereinafter described.

Leading from the upper end of the tank 12 is a pipe 14 which extends to and communicates with the end of the boiler 5 opposite the end at which the pipe 6 forms a junction with the boiler. A T-joint 15 is interposed in the pipe 14, and leading from the T-joint is a short pipe 16 in which is located a cut-off valve 17. For a purpose to be hereinafter described, a cut-off valve 18 is located in the pipe 14 intermediate the T-joint 15 and the end of the boiler, and a check valve 19 is located in the pipe adjacent the cut-off valve 18.

A draw-off pipe 20 extends from the lower end of the tank 12 and is provided with a cut-off valve 21.

In operation, the valves 10, 17 and 21 being closed and the remaining valves open, the steam pressure in the boiler will serve to force the lower strata of the water contained therein through the pipes 6 and 11 and into the tank 12, carrying with it any sediment which may be at the bottom of the boiler. The circulation of water in the tank is slower than the circulation of water through the pipes of the system and hence the sediment which is carried into the tank 12 will settle to the bottom thereof. The water thus cleansed passes through the pipe 14 and into the boiler at the end thereof opposite to the end from which the water passes into the system.

It will be understood from the foregoing that by opening the valve 21 the sediment in the tank 12 may be drawn off through the pipe 20 and that the flow of water through the system may be stopped by the valves 13 and 18, the check valve 19 serving to prevent back flow of the water through the system. Furthermore, it will be understood that the water from the boiler, if too full of sediment to be purified, may be drawn off through the pipe 9 by opening the valve 10 and that the pipe 14 of the system may be emptied by means of the valve 17, the horizontal portion of the pipe 14 being preferably slightly inclined in the direction of the boiler for the purpose above stated.

What is claimed as the invention, is:—

In a system of the class described, the combination with a boiler, of a tank disposed adjacent one end of the boiler, a pipe leading from the bottom of the boiler adjacent the said end thereof and communicating with the tank at a point intermediate its upper and lower ends, a pipe leading from the first mentioned pipe, a cut-off valve interposed at the junction of the two pipes, a cut-off valve interposed in the first mentioned pipe between the first mentioned valve and the point of junction of the pipe with the tank, a draw-off pipe leading from the bottom of the tank, a cut-off valve interposed in the said draw-off pipe, a pipe leading from the upper end of the tank and extending vertically above the same to a plane above the boiler, a pipe leading from the end of the boiler opposite that adjacent which the tank is located, a cut-off valve and a check valve interposed in the said pipe, a pipe forming a junction with the last named pipe and extending vertically to a plane above the boiler, an inclined pipe connecting the pipe which leads from the upper end of the tank and the last named pipe, a pipe forming a junction with the two last named pipes, and a cut-off valve interposed therein.

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

ELZA H. REITER.

Witnesses:
T. F. RARICK,
ARTHUR ROBBINS.