

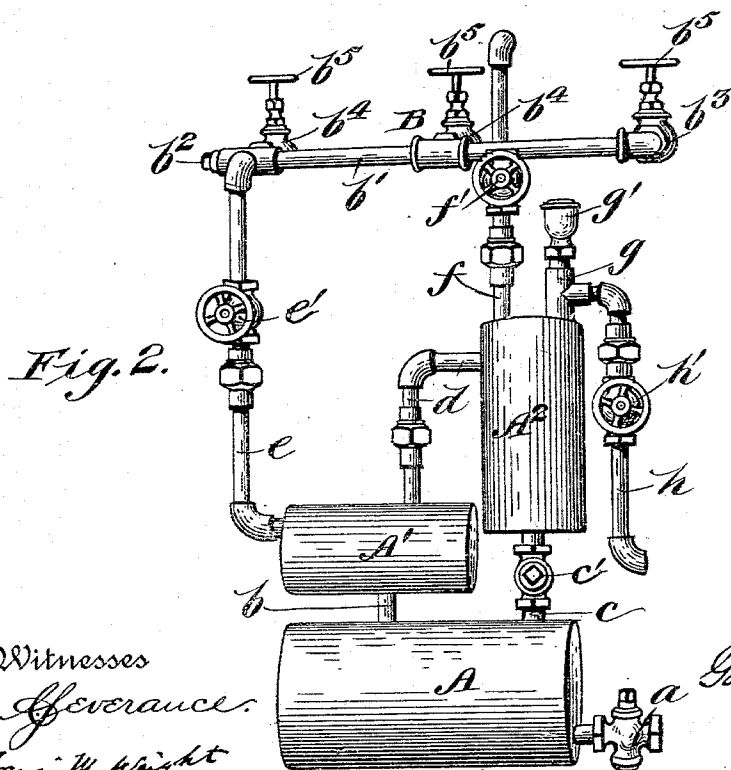
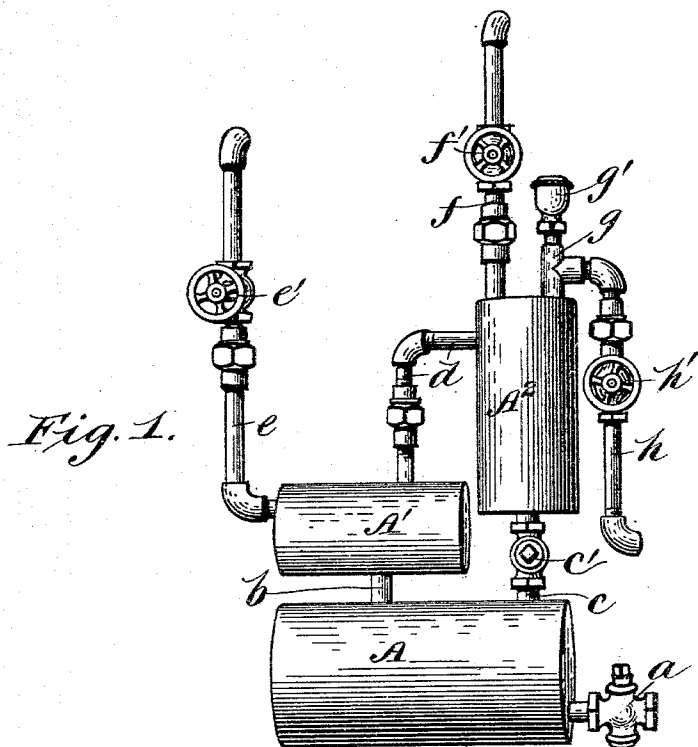
(No Model.)

2 Sheets—Sheet 1.

G. F. SCHMID.
BOILER CLEANER.

No. 511,064.

Patented Dec. 19, 1893.



Witnesses
Everance.
Francis M. Wright

Inventor
Gottlob F. Schmidt
by A. Lauck
Attorney

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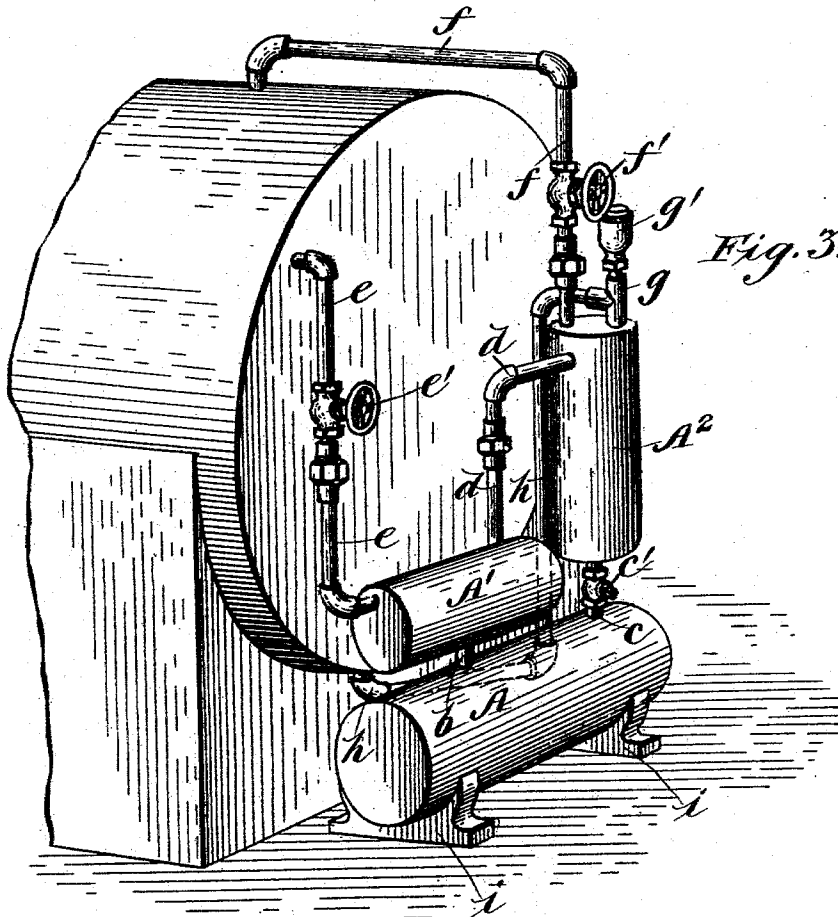


Fig. 3.

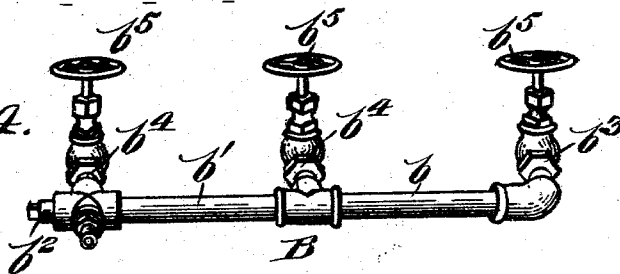


Fig. 4.

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UNITED STATES PATENT OFFICE.

GOTTLOB F. SCHMID, OF BEARDSTOWN, ILLINOIS, ASSIGNOR OF ONE-HALF
TO GEORGE W. DUCHARDT, OF SAME PLACE.

BOILER-CLEANER.

SPECIFICATION forming part of Letters Patent No. 511,064, dated December 19, 1893.

Application filed May 23, 1893. Serial No. 475,217. (No model.)

To all whom it may concern:

Be it known that I, GOTTLOB F. SCHMID, a citizen of the United States, residing at Beardstown, in the county of Cass and 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.

My invention relates to certain improvements in boiler cleaners, and it has for its object to provide for the thorough removal of all sediment and mud therefrom and to return the water, withdrawn with the sediment, purified to the boiler, and further to provide for the application of the cleaner to several boilers at the same time for the cleaning thereof at one operation, and it consists of a series or battery of drums adapted for co-action and having pipe connection with the boiler at the water-line and also steam pipe connection with the boiler, and means to return the water, entering the cleaner, purified to the boiler, also means to effect the connection of the cleaner to several boilers at the same time, all substantially as hereinafter more fully disclosed and pointed out in the claims.

In the accompanying drawings: Figure 1 is a perspective view of my improved boiler cleaner. Fig. 2 is a similar view of the same with the multiple boiler attachment connected thereto. Fig. 3 is a perspective view of my invention as adapted for a locomotive boiler and for thrashing engine boilers. Fig. 4 is a detached view of the multiple boiler cleaner attachment.

In the embodiment of my invention, I employ a series or battery of drums A A' A², preferably three, two arranged horizontally and one vertically or endwise, which are preferably of varying capacities, the lower horizontal or bottom one, A, being the largest, the upright or endwise disposed one, A², being next larger, and the upper horizontal one, A', being the smallest.

The lower horizontal or bottom drum, A, has, at one end, a blow-off valve or cock, *a*, and has connection with a drum A', at its bottom by a short vertical pipe, *b*, and with the

drum, A², at its lower end or bottom by a not quite so short pipe, *c*, provided with a valve or cock, *c'*. The drums, A' and A², are also connected together by an elbow pipe, *d*, having its lower end connected to the drum or receiving chamber, A', near one end, and its upper end connected to the drum, A², near its upper end.

The receiving or settling chamber or drum, A', at its opposite end, near the upper side, has connected to it the lower horizontal end of a vertical pipe, *e*, provided with a hand wheel cock or valve, *e'*, the upper end of this latter pipe being connected or coupled to a multiple boiler cleaner attachment, B, in case it is desired to apply the cleaner to several boilers for cleaning at the same time. Otherwise the upper end of the pipe, *e*, is connected directly to the boiler about at the water-line; and to the upper end of the return water chamber or drum, A², is connected the lower end of a steam pipe, *f*, having also a hand wheel valve or cock, *f'*, and connected, at its upper end, to the boiler at the steam space. To a short vertical pipe, *g*, screwed into the upper end of the drum, A², which may or may not have applied to it an oil cup, *g'*, is connected a return water pipe, *h*, also provided with a hand wheel valve or cock, *h'*.

The multiple boiler cleaner attachment, B, consists of a pipe, *b'*, having one of its ends suitably closed by a screw plug, *b²*, and its other end provided with a nozzle, *b³*, adapted to be connected or screwed into the boiler as shown. The pipe, *b*, is provided with several additional nozzles, *b⁴*, all of which, and the nozzle, *b³*, are provided with hand wheel valves or cocks, *b⁵*.

In Fig. 2 the apparatus or cleaner is shown as adapted for application to, and for cleaning, a series of boilers, the multiple boiler cleaner being in position therewith.

In Fig. 3 the apparatus or cleaner is represented as applicable for cleaning locomotive and traction engine boilers, the tank, A, thereof being furnished at its ends with angular end plates or lugs, *i i*, to provide for securing the apparatus in place upon the boiler. Said locomotive and traction engine cleaner or apparatus is also provided with a pipe or "union," *k*, to cut off the same from the boiler

this part or pipe, however, having its counterpart in the part or pipe, *d*, of Figs. 1 and 2.

In operation, assuming that the single boiler cleaner is being used, it will be seen that the sediment, mud, sludge, &c., in the water which, by the action of the steam or ebullition in the boiler, have been brought to the surface of the water, will be drawn toward, and find their escape through, the pipe, *e*, by the action of the suction in said pipe, and enter the receiving chamber or drum, *A'*, and separating and settling into the mud drum or chamber, *A*, the water going through the pipe, *d*, to the chamber or drum, *A*², and the now purified water passing from the chamber, *A*², through the return pipe, *h*, to the boiler.

In the use of the multiple boiler cleaner, as in cleaning several boilers at the same time, the operation is obvious, the sediment, &c., being drawn from the boilers through their respective nozzles, *b*³ *b*⁴, of the pipe, *b*, into said pipe, whence said sediment, &c., pass, as in the above described operation, into the pipe, *e*, and so on. When the sediment accumulated in the chambers or drums, *A* and *A*², is to be removed, the valve, *h'*, is closed and the valves, *e' f'*, are closed half way, and the cock or valve, *c'*, is opened wide or full way, and the blow-off cock, *a*, is opened gradually. While the operation is proceeding, produced by the above adjustment of the valves named, close the blow-off cock or valve, *a*, and the steam cock or valve, *f'*, and open wide the valves or cocks, *e' c'* and *h'*, thus producing a circulation through the boiler and said chambers and pipes.

It will thus be seen that I secure an increased or extended traveling surface or area to effectually precipitate the sediment in the cleaner, and also secure a continuous and direct circulation, providing a maximum suction for the thorough removal of the sediment, &c., from the boiler.

I claim and desire to secure by Letters Patent—

1. In a boiler cleaner, a series or battery of three pipe connected drums or chambers, the upper or settling chamber or drum having connection by a pipe with the return water chamber or drum, a return water pipe connected with the latter drum or chamber and adapted to be connected to the boiler, and pipes connected to said settling chamber or drum and said return water chamber or drum, respectively, and adapted to be connected to the water and steam chambers of the boiler, respectively, substantially as specified.

2. The combination with a battery or series of pipe connected drums or chambers having a valved return water pipe adapted to be connected to the boiler, the mud drum or chamber having a blow off valve or cock, and the pipes connected to the settling chamber or drum and the return water chamber or drum provided with valves or cocks, of the multiple boiler attachment comprising a pipe adapted to be connected to the valved settling cham-

ber pipe and having a series of valved nozzles, substantially as set forth.

3. The combination with a boiler, of an upper drum or chamber having separate connections with the steam space, the water line, and the water space of the boiler, a sediment drum below the upper drum and a pipe connecting the lower drum to the upper drum, the connection of the upper drum with the boiler being independent of the lower drum substantially as described.

4. The combination with a boiler of a drum having a separate pipe connection with the boiler at about the water line, a drum having pipe connections with the steam and water spaces of the boiler, and a pipe connection between the two drums, said connections of each drum with the boiler being independent of the other drum substantially as described.

5. The combination with a boiler, of a sediment drum, upper drums having separate pipe connections with the steam space, the water line and the water space of the boiler, and pipes connecting the sediment drum with the upper drums, substantially as described.

6. The combination with a boiler, of two upper drums, whereof one communicates with the boiler at about the water line thereof, and the other communicates with the boiler at the steam and water spaces, and a lower drum communicating with both the upper drums, substantially as described.

7. In a boiler cleaner, the combination of a settling drum, a return water drum, a direct pipe connection between them, a third or sediment drum, and an indirect connection between the two former drums through the sediment drum, substantially as described.

8. In a boiler cleaner, a series or battery of three drums or chambers, having cyclical pipe connection with each other independent of the boiler connections, and pipes connecting two of said drums with the water line and water space, respectively, of the boiler, substantially as described.

9. In a boiler cleaner, a series or battery of three drums or chambers, having cyclical connection with each other independent of the boiler connections, and pipes connecting two of said drums with the water line and steam space, respectively, of the boiler, substantially as described.

10. In a boiler cleaner, a series or battery of three drums or chambers, having cyclical pipe connection with each other, independent of the boiler connections, and pipes connecting one of said drums with the water line and steam space of the boiler, and another of said drums having a pipe connection with the boiler at the water line, substantially as described.

11. The combination, in a boiler cleaner, of a settling drum, a water-line pipe connection to said drum from the boiler a return-water drum connected to the settling drum, a return-water pipe connection to the boiler, means for closing both of said boiler connec-

tions, a sediment drum connected with said settling drum, a blow off cock in said sediment drum, and means for admitting steam to said sediment drum from the steam space of the boiler, substantially as described.

12. In a boiler cleaner, the combination of a settling drum, two pipes leading to said drum and adapted to enter the boiler at the steam space and the water line, respectively, a return-water connection adapted to lead to the water space of the boiler, and independent of the sediment drum and a sediment drum underneath the settling drum for receiving the sediment and normally disconnected from the boiler except through said settling drum, substantially as described.

13. In a boiler cleaner, the combination of a settling drum, pipe connections from said drum to the steam space, the water space, and the water line of the boiler, a sediment drum independent of said pipe connections connected normally only with the settling

drum, and a blow off cock in said sediment drum, and a passage from said sediment drum to the steam space, normally closed, but adapted to be opened to clean said sediment drum, substantially as described.

14. In a boiler cleaner, the combination of a settling drum, pipe connections from said drum to the water space and the water line of the boiler, a sediment drum independent of said pipe connections connected normally only with the settling drum, and a blow off cock in said sediment drum, and a passage from said sediment drum to the steam space normally closed but adapted to be opened to clean said sediment drum, substantially as described.

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

GOTTLOB F. SCHMID.

Witnesses:

J. T. LINTON,
ANDIE TERRIL.