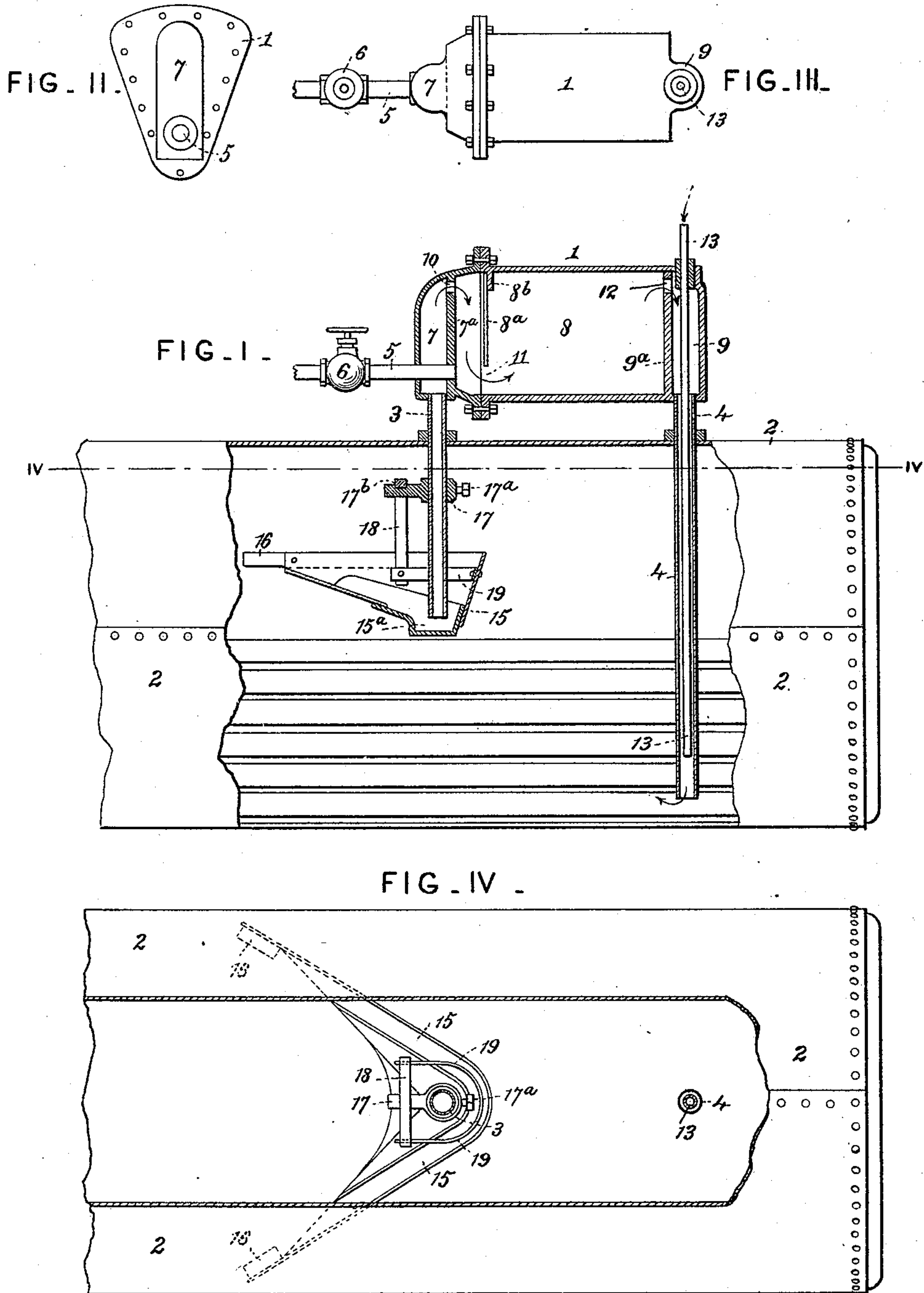


(No Model.)

G. GUILD.  
BOILER CLEANER.

No. 396,400.

Patented Jan. 22, 1889.



Attest:  
Geo. T. Smallwood.  
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Inventor:  
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# UNITED STATES PATENT OFFICE.

GEORGE GUILD, OF KNOXVILLE, TENNESSEE, ASSIGNOR OF ONE-HALF TO  
CHARLES H. BROWN, OF SAME PLACE.

## BOILER-CLEANER.

SPECIFICATION forming part of Letters Patent No. 396,400, dated January 22, 1889.

Application filed January 21, 1888. Serial No. 261,510. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE GUILD, a citizen of the United States, residing at Knoxville, in the county of Knox and State of Tennessee, have invented certain new and useful Improvements in Boiler-Cleaners, of which the following is an exact, full, and clear description.

My invention has for its object separating  
10 from the water in the boiler the scum and sediment; and it consists of features of novelty hereinafter more fully described, and pointed out in the claims.

In carrying out my invention I provide a  
15 circulating system for the water in which is interposed a settling-drum of peculiar construction provided with a suitable blow-off, and operating in connection with which is the feed-water pipe, arranged in such manner as  
20 to increase the circulation, all of which will be more fully understood by reference to the accompanying drawings, in which—

Figure I is a vertical section of a boiler having my invention applied. Fig. II is an end  
25 view of the settling-drum. Fig. III is a top view of the same. Fig. IV is a horizontal section on the line IV IV, Fig. I, of a portion of the boiler.

1 is a settling-drum supported over a boiler,  
30 2, by the inlet-pipe 3 and return-pipe 4, which are tapped into the boiler in the usual manner. The settling-drum is made oval in cross-section with the narrow portion downward. Partitions 7<sup>a</sup> and 9<sup>a</sup>, which divide the drum  
35 into three compartments, are so arranged as to form a receiving-chamber, 7, a main settling-chamber, 8, and an outlet-chamber, 9, the two end chambers, 7 and 9, communicating with the settling-chamber 8 through openings 10 and 12, respectively, in the partitions  
40 at the top of the drum. These end chambers, 7 and 9, also communicate with the boiler through pipes 3 and 4, respectively. A third partition, 8<sup>a</sup>, is secured in the main chamber  
45 8 by a bolt entering the lug 8<sup>b</sup>, the partition being made to fit tightly the sides of the drum and extending down to within a short space of the bottom, so as to leave a passage, 11. By this construction the water entering the  
50 main chamber is made to pass down and enter the main portion of the settling-chamber at

the bottom. A blow-off, 5, is tapped into the end of the drum passing through the receiving-chamber and communicating with the settling-chamber directly opposite the opening 11.

13 is the feed-water pipe, which passes down through the outlet-chamber 9 and return-pipe 4, which is made large enough to allow free return of circulating water. The feed-pipe  
60 terminates a short distance within the return-pipe 4, so that the force of the feed-water will cause the circulation. From this construction it will also be seen that the feed-water will be materially heated when passing through that  
65 portion of the feed-pipe surrounded by the end chamber and return-pipe, and, furthermore, that it will be mixed at the end of the feed-pipe with the circulating water from the settling-drum to a very considerable extent. 70

In order to secure the circulation of only  
75 the upper portion of the water in the boiler, which contains the most impurities and all the scum, I provide a skimmer, 15, provided with a basin, 15<sup>a</sup>, so supported upon the  
80 pipe 3 that the end of said pipe will draw off from said basin only. In order that only the scum or surface of the water be collected in this basin, the skimmer is made flaring at its upper end, and is provided with  
85 the floats 16, so mounted on the skimmer as to keep the bottom of its open end at or very near the surface of the water. These floats 16 are preferably formed of metallic  
90 tubing closed at ends and of sufficient displacement to support the weight of the skimmer. These floats are secured at their ends to the skimmer, and, being extended in the same direction as the sides of the skimmer, serve to guide the scum into the same. In  
95 supporting the skimmer on the tube 3 any suitable construction may be used; but I prefer to use that shown in the drawings, in which I employ a perforated bracket, 17, fitted over the tube and secured in place by a set-screw,  
17<sup>a</sup>. This bracket is recessed at 17<sup>b</sup> and adapted to carry a hanger, 18, hinged to a frame, 19, which is in turn secured to the back of the skimmer.

From the above-described construction and  
100 arrangement of parts it will be seen that the feed-water entering the lower section of the



return-pipe 4 induces a circulation through the system, whereby the surface scum passes up into the settling-drum, where it may be blown off at will.

5 Having thus described the nature of my invention and the manner of carrying the same into effect, the following is what I claim as new and desire to secure by Letters Patent:

10 1. The combination, with the boiler, of a settling-drum, pipes connected to the bottom of said drum remote from each other and to said boiler, partitions dividing said drum from top to bottom between said pipes and having perforations at their tops, a deflector  
15 extending downward into said drum to within a short distance from its bottom, and a blow-off pipe extending through the end of said drum, and also through one of said partitions at a level below the end of said deflector,  
20 whereby sediment throughout the extent of the bottom of said drum between said partitions may pass out *via* the blow-off without obstruction, as set forth.

25 2. The combination, with a settling-drum, a boiler, and pipes connecting the drum with the boiler, of a device for collecting the scum from the surface of the water, consisting of the skimmer 15, a bracket secured adjustably to one of said pipes, and a hanger suspending  
30 said skimmer from said bracket, as herein set forth.

35 3. The combination, with a settling-drum, a boiler, and pipes connecting the drum with the boiler, of the skimmer 15, for collecting the scum, a basin, 15<sup>a</sup>, at one end of said skim-

mer, a bracket secured to one of said pipes, and a hanger secured to said bracket and to said skimmer, supporting said basin directly under the end of said pipe, substantially as set forth.

40 4. The combination, with a boiler and a pipe extending into the boiler for drawing off water, of means for collecting the scum, consisting of a skimmer, 15, having in one end a basin, 15<sup>a</sup>, arranged under the end of said  
45 pipe, floats secured to the other end, and a hanger hinged to the end opposite said floats and mounted adjustably on the said outlet-pipe, as set forth.

50 5. In a boiler, the combination of an outlet-pipe, 3, a bracket, 17, on the pipe, a hanger, 18, a frame, 19, on a skimmer, 15, hinged to said hanger, and floats 16 on the other end of the skimmer, as set forth.

55 6. The combination, with a boiler, of a drum supported thereon by two pipes leading from the boiler, the said drum having a settling-chamber, a blow-off pipe communicating with the lower part of the settling-chamber, two  
60 end chambers with which the supporting-pipes communicate, and which communicate with the settling-chamber at the top of the drum, and a partition, 8<sup>a</sup>, in the settling-chamber for directing the water downward, as herein shown and described.

GEO. GUILD.

Witnesses:

CHAS. H. BROWN,  
JSE. MCCLUNGHAN.