

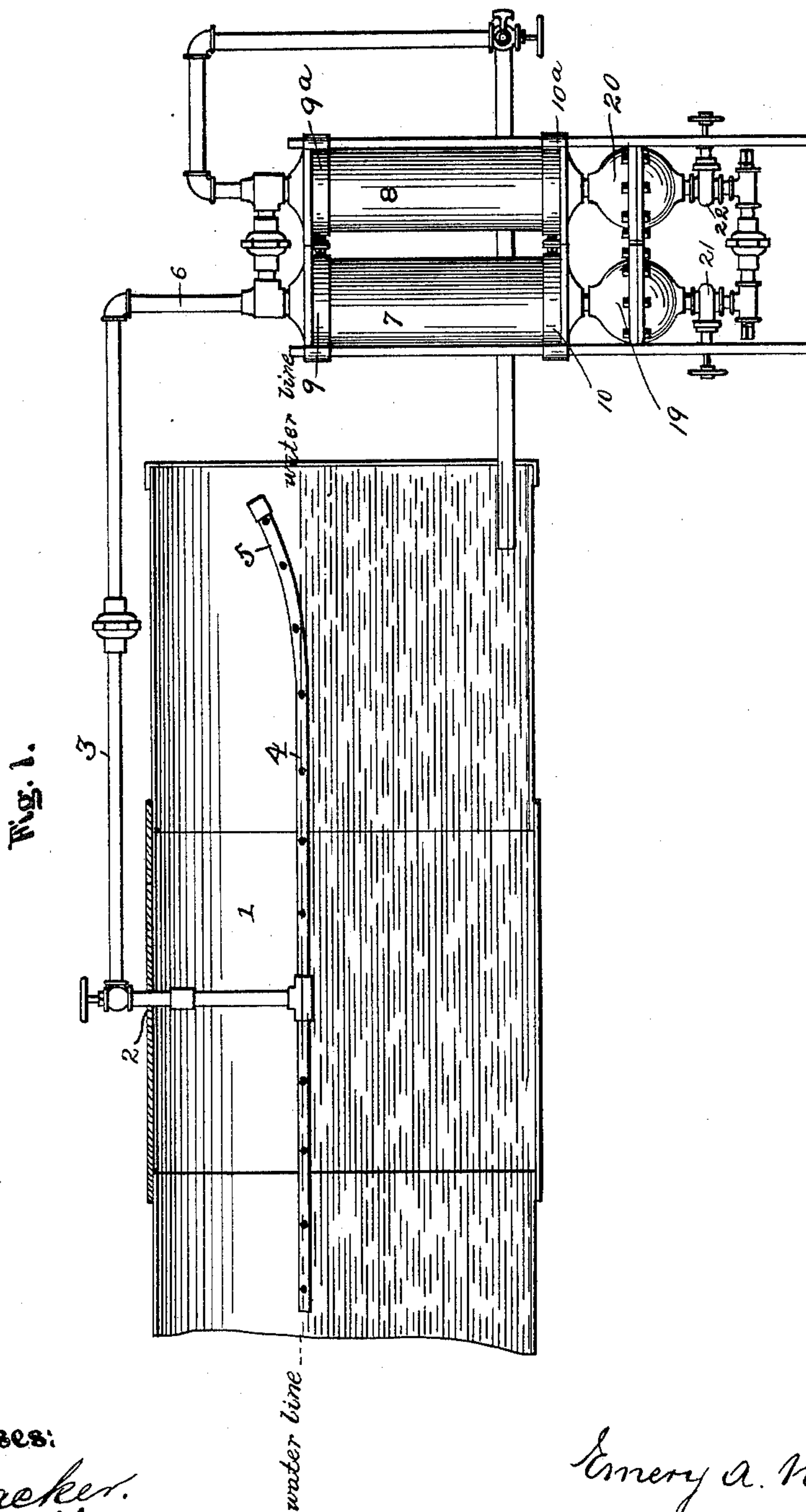
(No Model.)

2 Sheets—Sheet 1.

E. A. NEWCOMB.  
AUTOMATIC BOILER CLEANING APPARATUS.

No. 592,553.

Patented Oct. 26, 1897.



Witnesses:

*E. G. Jaeger.*  
*J. Buckler.*

Inventor:

*Emery A. Newcomb.*  
*by V. B. Singer.*  
**Att'y.**

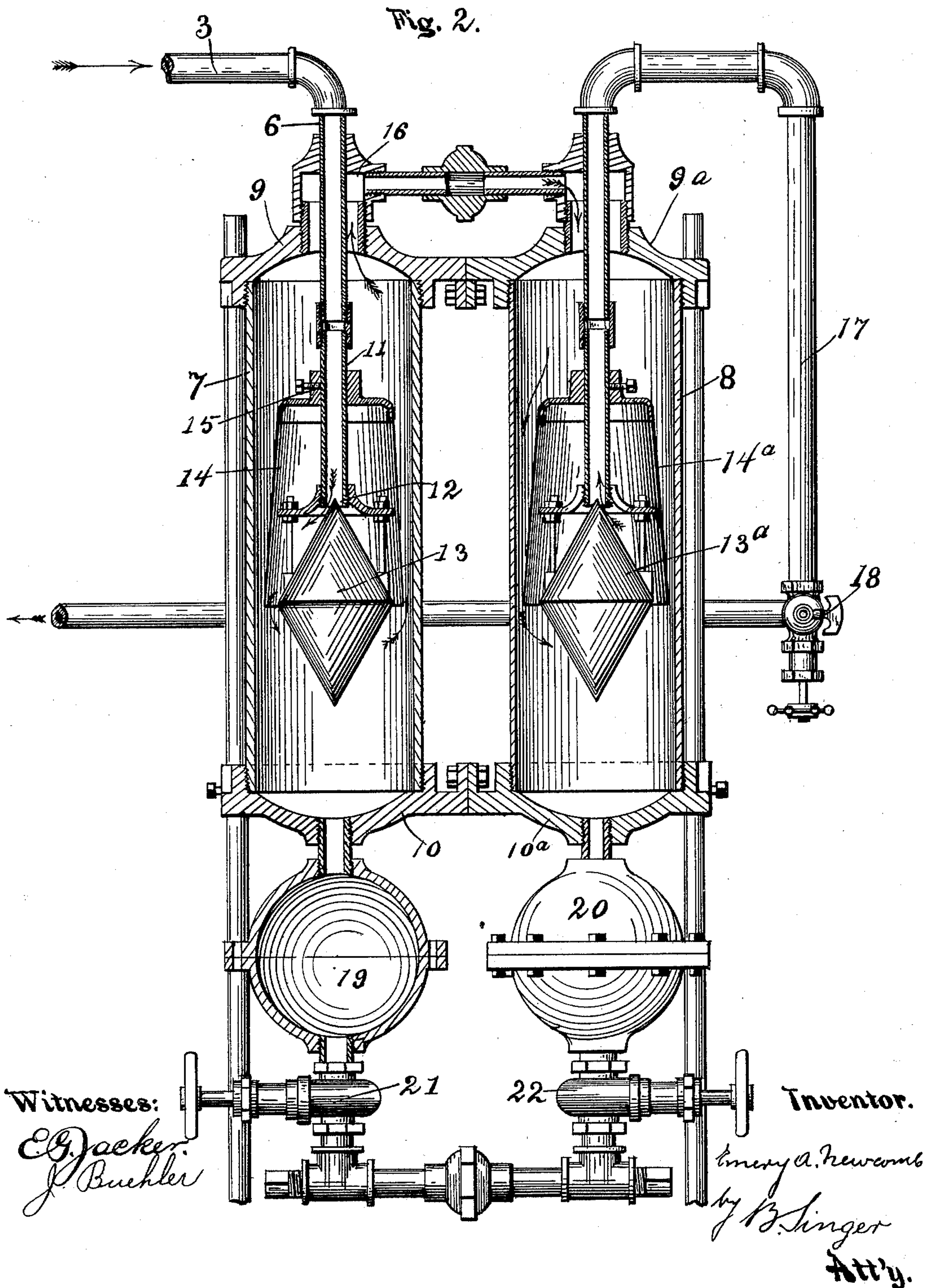
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# UNITED STATES PATENT OFFICE.

EMERY A. NEWCOMB, OF CHICAGO, ILLINOIS, ASSIGNOR TO HENRY BOEHMER,  
OF BARRINGTON, ILLINOIS.

## AUTOMATIC BOILER-CLEANING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 592,553, dated October 26, 1897.

Application filed April 1, 1897. Serial No. 630,333. (No model.)

*To all whom it may concern:*

Be it known that I, EMERY A. NEWCOMB, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented a new and useful Improvement in Automatic Boiler-Cleaning Apparatus, of which the following is a specification.

My invention has relation to an automatic boiler-cleaning apparatus.

My object is to provide a device of this character which will overcome the objectionable features of the boiler-cleaners now in existence and at the same time be durable and efficient in use.

Referring to the drawings, forming a portion of my specification, Figure 1 is a side elevation of my device, showing the manner of its connection to the boiler. Fig. 2 is a sectional elevation of the boiler-cleaner proper.

In the drawings, 1 indicates a boiler constructed in the usual manner. Tapped into the boiler at 2 is a water-pipe 3, provided at one extremity with a perforated skimmer 4, having upturned ends, as at 5. A pipe 6 connects the water-pipe 3 to one of the precipitating-cylinders 7 of the cleaning apparatus, which will now be described.

Generally speaking, the boiler-cleaner consists of two or more precipitating-cylinders 7 and 8, each provided with an upper head 9 and 9<sup>a</sup> and a lower head 10 and 10<sup>a</sup>, appropriately secured thereto. Passing through the head 9 of cylinder 7 is a water-pipe 11, whose discharge end 12 is so arranged with reference to a deflector 13, secured to the lower end of the pipe 11, that water issuing from the pipe is spread over the surface thereof for a purpose to be hereinafter set out. It will be observed that in Fig. 2 I have shown this deflector 13 as being of the general contour of a double cone. I desire it to be understood, however, that the general outline and contour of the deflector may be changed at will without in the least departing from the spirit of my invention. A hood 14 is so arranged on the pipe 11 that it may by means of a collar and the bolt 15 be adjusted in any desired position thereon. It will be observed that the adjustable hood is so disposed that it surrounds the deflector in such a manner as to leave a space between it and the deflector, as well as between the in-

ner surface of the cylinder and the outer side of the hood.

The cylinder-head 9 is connected by means of a pipe or passage-way 16 to the head 9<sup>a</sup> of the precipitating-cylinder 8.

A suitable water-pipe 17, provided with a cock 18, leads to the lower part of the boiler. Attached to that end of the pipe in the cylinder 8 is an adjustable hood 14<sup>a</sup> and a deflector or guide 13<sup>a</sup>, similar to those heretofore described in connection with precipitating-cylinder 7, but whose effect, as will hereinafter appear, is the reverse of the one formerly alluded to.

The cylinders 7 and 8 are suitably connected at their lower ends to mud-drums 19 and 20, each of which is provided with a blow-off valve 21 and 22 of any well-known construction.

The operation of the device is as follows: The mud and "scale" making material in the water of the boiler passes with some of the water into the skimmer and through the pipe 6 to the precipitating-cylinder 7 by means of pipe 11, where it is spread over the deflector 13, passing through the space between the deflector and the hood 14, when a portion of the mud and other heavy materials is precipitated from the deflector and falls to the bottom of the precipitating-cylinder and thence to the mud-drum 19. The water thus relieved of a portion of its material passes upward between the hood and the cylinder, as shown by the arrows, and out through the cylinder-head 9 and by means of the passage 16 into the cylinder 8 through the opening in the cylinder-head 9<sup>a</sup>, when it is again spread, this time over the outer surface of the hood 14<sup>a</sup> in the cylinder 8. The water then passes downward between the hood and the cylinder and is then relieved of the remaining portion of heavy material, which falls to the bottom of the cylinder and thence to the mud-drum. The water then passes upward between the hood and the deflector and, guided by the deflector 13<sup>a</sup>, goes into the pipe 17 and is then conveyed to the boiler. The mud and precipitates deposited in the drums are blown off when necessary.

I claim—

1. A boiler-cleaner comprising two connected precipitating-cylinders, a double cone-



shaped deflector arranged in each cylinder, a pipe located over and inclosing a portion of one end of each deflector, a hood carried by each pipe and adapted to be moved thereon  
5 to adjust the hood with relation to the deflector, a mud-drum below each cylinder, an inlet-pipe connecting one of the cylinders with the boiler at the water-line, and an outlet-pipe connecting the other cylinder with  
10 the boiler below the water-line, substantially as described.

2. A boiler-cleaner comprising two connected precipitating-cylinders, a double cone-shaped deflector arranged in each cylinder,  
15 a pipe located over and inclosing a portion of one end of each deflector, a hood carried by each pipe and adapted to be moved thereon to adjust the hood with relation to the deflector, a mud-drum below each cylinder, an  
20 inlet-pipe connecting one of the cylinders with a skimmer at the water-line, and an outlet-pipe connecting the other cylinder with the boiler below the water-line, substantially as described.

25 3. A boiler-cleaner comprising two connected cylinders, telescopic pipes extending into the cylinders, a double cone-shaped deflector secured to each pipe, a hood on the

pipes mounted for adjustable movement thereon, and mud - drums, provided with valves, in communication with the cylinders, substantially as described. 30

4. In an automatic boiler-cleaning apparatus, a precipitating-cylinder, an adjustable diamond-shaped deflector arranged therein, 35 a funnel-shaped deflector inclosing the first-named deflector to its middle line, an inlet-pipe to which the second-named deflector is adjustably secured, the said pipe discharging upon the point of the diamond-shaped  
40 deflector, a second precipitating - cylinder connecting with the first cylinder near its top, and containing also, a diamond-shaped deflector inclosed by a funnel-shaped deflector, mud-drums below and in communication with the cylinders, a pipe connecting the first cylinder and the boiler above the water-line, a pipe connecting the second cylinder and the boiler below the water-line, and suitable valves on the boiler connecting  
50 pipes and the mud-drums, substantially as described.

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