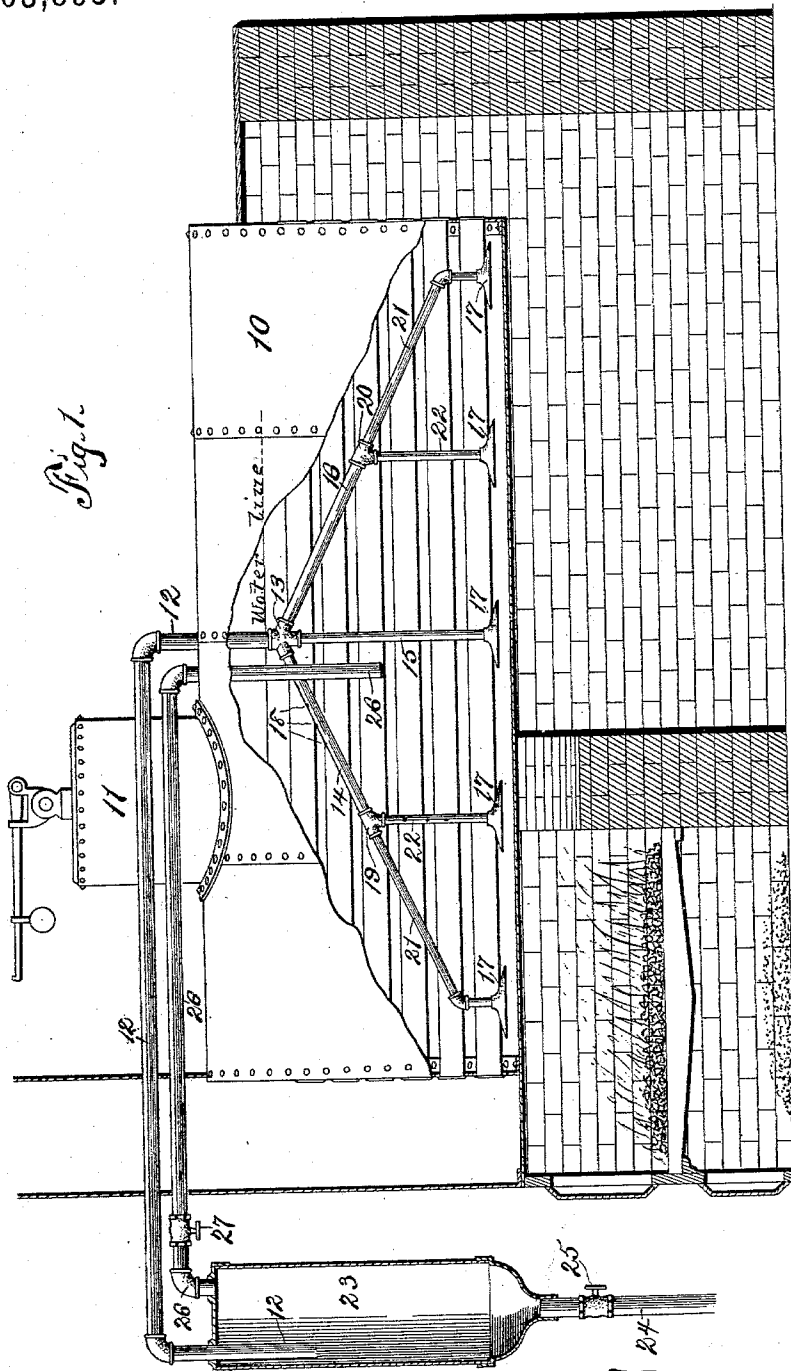


(No Model.)

M. TEETOR & G. W. KEMP.
APPARATUS FOR CLEANING BOILERS.

No. 563,893.

Patented July 14, 1896.



Witnessed:
W. J. Sankey.
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UNITED STATES PATENT OFFICE.

MARTIN TEETOR AND GEORGE W. KEMP, OF DES MOINES, IOWA, ASSIGNORS
TO F. D. WETHERELL, OF SAME PLACE.

APPARATUS FOR CLEANING BOILERS.

SPECIFICATION forming part of Letters Patent No. 563,893, dated July 14, 1896.

Application filed March 10, 1896. Serial No. 582,685. (No model.)

To all whom it may concern:

Be it known that we, MARTIN TEETOR and GEORGE W. KEMP, citizens of the United States of America, and residents of Des Moines, in the county of Polk and State of Iowa, have invented a certain new and useful Apparatus for Cleaning Boilers, of which the following is a specification.

The object of this invention is to utilize the steam-pressure within a boiler to blow off, loosen, and carry away the scale and other impurities which otherwise would be precipitated upon and adhere to the boiler-surface and tubes or flues.

A further object of this invention is to set up and maintain automatically a circulation of the water within a boiler by and through the medium of the differences in the degrees of pressure relative to the center or periphery of the boiler.

Our invention consists in the combination with a steam-boiler of a tank, a supply-pipe leading from within said tank to the central portion of the boiler, branches on said supply-pipe within the boiler, collectors or bell-shaped mouthpieces on the ends of said branches adjacent to the lower portion of the boiler, a return-pipe leading from the upper end portion of said tank to the central portion of the boiler, a cut-off valve in said return-pipe, and a flush-valve in the bottom of said tank or connected therewith.

Our invention consists, further, in the provision of lesser openings in the supply-pipe in the upper portion of the boiler, whereby the scale or light articles of foreign substance may be removed from the upper portion.

Our invention consists, further, in the construction, arrangement, and combination of elements hereinafter set forth, pointed out in our claims, and illustrated by the accompanying drawing, in which the figure is a sectional elevation longitudinally of a boiler, illustrating the construction and application of our apparatus.

In the construction of the apparatus as shown the numeral 10 designates a boiler, the water-line in which is indicated at a distance above the upper tubes. Traversing the central portion of the top of the boiler adjacent to the steam-dome 11 is a supply-pipe

12, which extends within the boiler approximately to the upper tubes. A four-way pipe-coupling 13 is mounted on the lower end of the pipe 12 and has connected thereto diverging and radiating pipes 14, 15, and 16. The pipes 14 16 are of less diameter than the pipe 12 and slightly-greater diameter than the pipe 15. The pipe 15 extends downwardly in alinement with the pipe 12 and terminates with a bell-shaped mouth 17 and open end near the bottom of the boiler. The pipe 14 is provided with a series of small perforations 18 adjacent to the coupling 13 and on the upper side of said pipe. The pipes 14 16 diverge and are connected to couplings 19 20. Pipes 21 22 are connected to the couplings 19 20 and extend at angles to each other to, and terminate in, bell-shaped mouthpieces and open ends near the lower portion of the boiler. The mouthpieces of the various pipes are arranged in a common plane parallel with the lower portion of the boiler. An elbow formed in the supply-pipe 12 above the boiler and said pipe is extended horizontally to a tank 23 and through the upper end portion of said tank to a point of discharge at or near the center thereof. A pipe 24 is connected with the lower end portion of the tank 23 and is provided with a cut-off valve 25. A return-pipe 26 leads from the upper portion of the tank 23 parallel with the pipe 12 into the central portion of the boiler and discharges at or about the center of the body of water contained within the boiler. The ends of the pipes 12 26 within the tank 23 are of different altitudes, the pipe 12 extending below the pipe 26.

It is well known that the pressure within a boiler varies somewhat, becoming greater as the bottom of the boiler is reached, and therefore by arranging the pipes to receive water from the lower portion of the boiler and discharge it within the central portion of the boiler a constant circulation may be maintained through the pipes and tank when the tank is filled and the valve 25 closed. A valve 27 is provided in the pipe 26 by means of which the flow through said pipe may be cut off and then by opening the valve 25 a circulation is established through the pipe 12, tank 23, and pipe 24. The pipe 12 being fed by the series of lesser pipes receiving

their contents at or near the bottom of the boiler it follows that said pipes serve to exhaust, take up, and convey to the tank sediment or any foreign substance contained in
5 or about the mouthpieces thereof, and said mouthpieces materially assist in collecting and converging the substance acted upon by the suction-currents. In the apertures or perforations of the pipe 14 provision is made
10 for sucking in and carrying away floating particles of scale or other foreign substance carried in the upper portion of the water.

We claim as our invention—

1. An apparatus for cleaning boilers, comprising a supply-pipe entering a central portion of the boiler, branches on said supply-pipe within said boiler which branches radiate toward the bottom of the boiler, bell-shaped
15 mouthpieces on the extremities of said branches, a tank with which the outer end portion of the supply-pipe communicates, a

flush-pipe leading from said tank and provided with a stop-valve and a return-pipe leading from the upper end of said tank to the central portion of the water contained in
25 the boiler and provided with a stop-valve, as set forth.

2. In an apparatus of the class described a supply-pipe having divergent branches leading from the water-line to the bottom of the
30 boiler, one of which branches is perforated in proximity to the water-line within the boiler.

3. In an apparatus of the class described, a pipe, branches leading obliquely from said pipe, branches leading obliquely from the
35 first said branches and means for exhausting water through said pipe and branches.

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