J. ZETKA.

BOILER CLEANSING APPARATUS.

APPLICATION FILED SEPT. 16, 1909.

947,955. Patented Feb. 1, 1910.

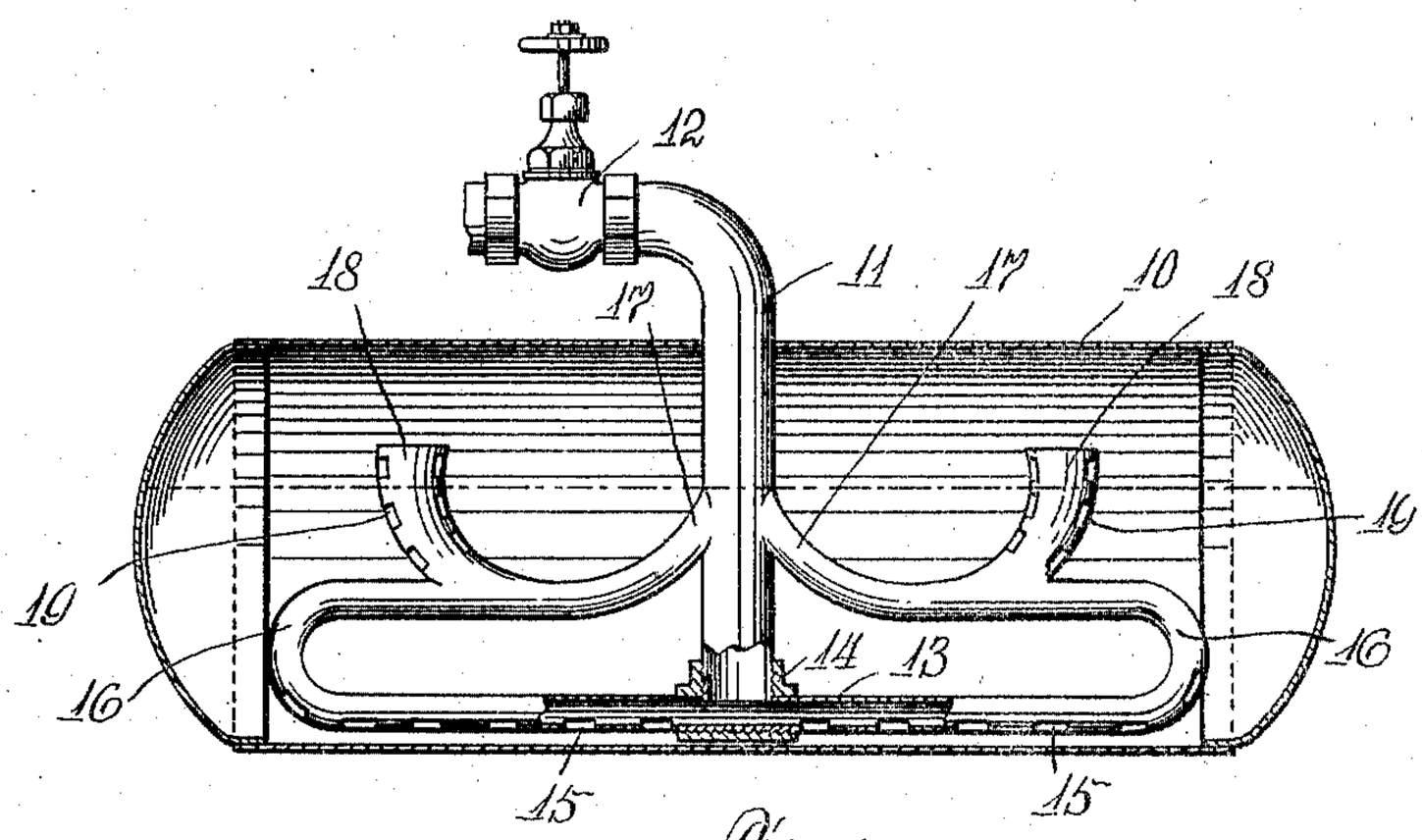

Fig. 1

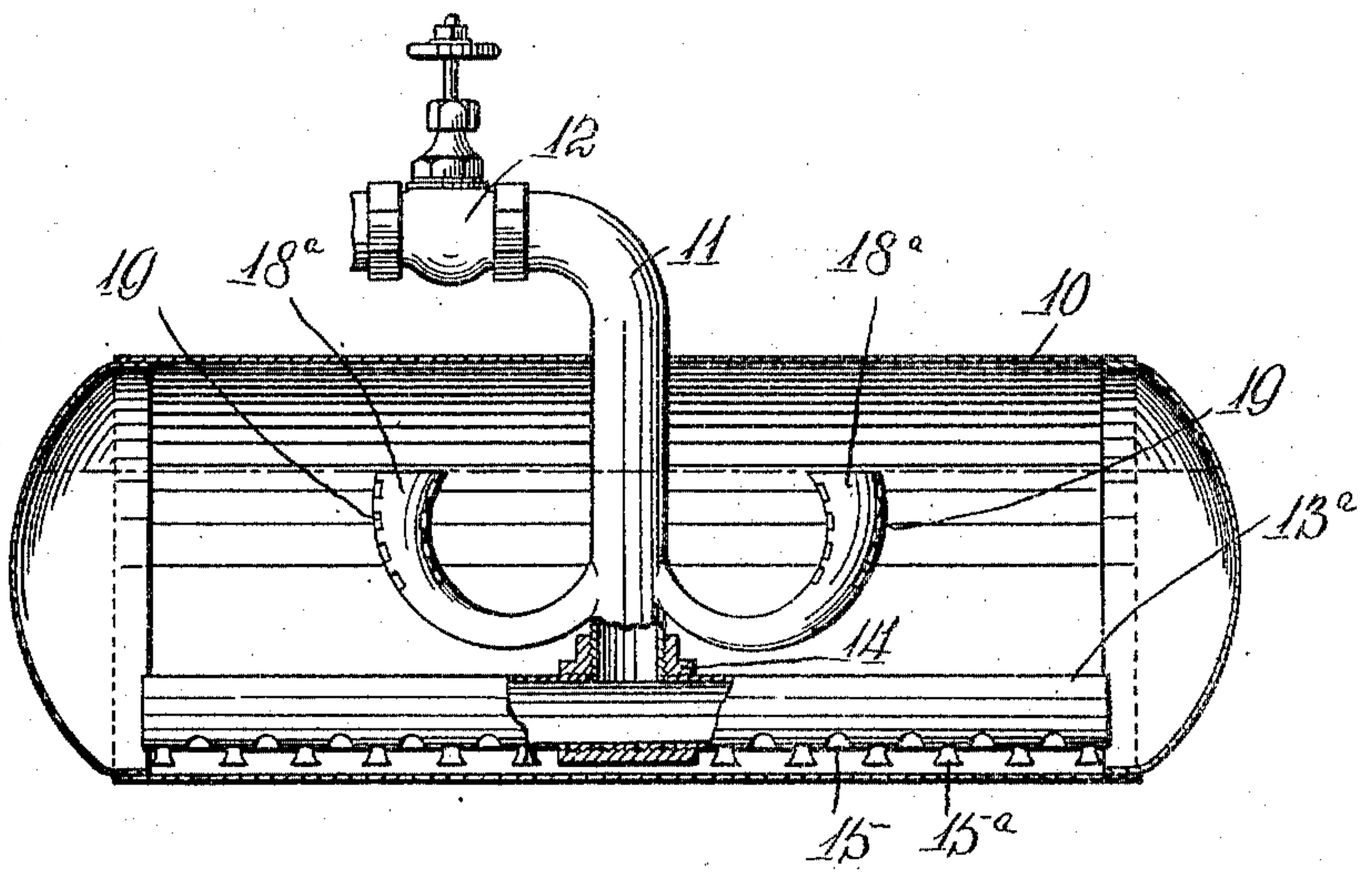

Fig. 2.

Witnesses:
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John Zetka, Inventor,
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UNITED STATES PATENT OFFICE.

JOHN ZETKA, OF NEWARK, NEW JERSEY.

BOILER-CLEANSING APPARATUS.

947,955. Specification of Letters Patent. Patented Feb. 1, 1910.

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To all whom it may concern:

Be it known that I, JOHN ZETKA, of the city of Newark, county of Essex, and State of New Jersey, have invented a new and useful Improvement in Boiler-Cleansing Apparatus, of which the following is a full, clear, and exact description.

My invention relates to improvements in apparatus for removing sediment, dirt, and fine obstructions from boilers.

The object of my invention is to produce a simple apparatus which can be inserted in a boiler and by which the boiler can be thoroughly cleansed by the mere opening of a valve, provided that steam is on in the boiler.

My invention is more specifically intended to produce a pipe system which is controlled by a valve outside the boiler, while the main system is located within the boiler, and in which the main pipe serves as a suction pipe so that the steam pressure in the boiler will force a rapid current of steam through the suction pipe and cause the suction to draw up from the boiler bottom any sediment which may have collected there, and discharge the sediment outside the boiler.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar reference characters indicate corresponding parts in all the views.

Figure 1 is a sectional elevation of the apparatus embodying my invention, and Fig. 2 is a similar view showing a slight modification of the invention.

The boiler 10 can be of any usual type, and leading from it, preferably at the top, is a relatively large suction pipe 11 which is controlled by a valve 12, and which can be led off to any convenient place to discharge. The pipe extends downward into the boiler to a point near the bottom of the latter, where it connects with a perforated pipe 13, the connection being by means of a suitable coupling 14. The pipe 13 lies along the boiler bottom, and is provided with numerous rather large perforations or holes 15 through which sediment in the boiler is sucked up. The end portions of the pipe 13 are doubled over as shown at 16 and returned on themselves, these upper members of the perforated pipe merging into the curved pipes 18 which are preferably curved upward, as shown at 17, at their inner ends, and connect with the main suction pipe 11. The pipes 18 are preferably bell-mouthed so that there will be a large steam area of pressure on their mouths, and they are provided with numerous large holes or openings 19, some of which are certain to come at or near the water line in the boiler. The upper ends of the curved tubes or pipes 18 should project above the water line and into the steam area of the boiler.

It will be seen that when it is desired to cleanse the boiler, all that is necessary to do is to open the valve 12, whereupon the heavy pressure in the pipes 18 will cause the steam to rush through the pipes and up and out through the pipe 11. As this action occurs, the swift outpouring of steam will cleanse the boiler in two ways. First, it will suck in through the openings 19 the froth on the top of the water in the boiler, and next it will suck up through the openings 15 any sediment which may be in the boiler bottom, and so the boiler will be quickly and thoroughly cleansed.

It will of course be understood that the boiler can be provided with any usual feed water devices, and that the water may be fed in at the same time that it is being withdrawn from the pipe 11, so that the cleansing of the boiler can be attained without shutting off steam or interfering with any of the ordinary functions of the boiler and its connected apparatus.

In Fig. 2 I have shown a very slight modification of the apparatus, in which the curved upper parts of the pipe 13 are dispensed with. Here the pipe 13^a is a straight pipe lying along the boiler bottom and provided with numerous openings 15 like those already shown, and with nipples 15^a which project downward so that the sediment can be sucked in from two different levels. The pipes 18^a are arranged like the pipes 18 already described, and the operation is precisely as set forth above. It will be understood that the pipes 13 and 13^a and 18 and 18^a can be duplicated if desired, without affecting the principle of the invention.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent:—

1. An apparatus of the kind described, comprising a main suction pipe adapted to be inserted in a boiler, a valve to control the pipe, a perforated pipe connected with the suction pipe and adapted to lie near and

essentially parallel to the boiler bottom, and pipes connected to said suction pipe, said pipes having perforations in the sides thereof and open ends, said open ends extending above the water line of the boiler.

2. An apparatus of the kind described, comprising a boiler, a main valve controlled suction pipe extending from a point within the boiler and near the boiler bottom through the boiler shell, curved branch pipes connected to the main pipe below the water line of the boiler and having open ends and perforations in the sides thereof, said open ends extending above the water line in the boiler, and a perforated pipe lying along and essentially parallel to the boiler bottom and connected with the main suction pipe.

3. An apparatus of the kind described, comprising a boiler, a main valve controlled suction pipe extending within said boiler to a point near the boiler bottom curved branch pipes connected with said suction pipe, said pipes being open at the ends and provided with side perforations and so adapted that the open ends extend above the water line in the boiler, and a perforated pipe near the bottom of the boiler, said perforated pipe connecting with the main suction pipe and also at its water ends with the aforesaid branch pipe.

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