No. 618,465. Patented Jan. 31, 1899.

C. E. KING.

STEAM BOILER CLEANER.

(Application filed Dec. 27, 1897.)

(No Model.)

Fig. 3.

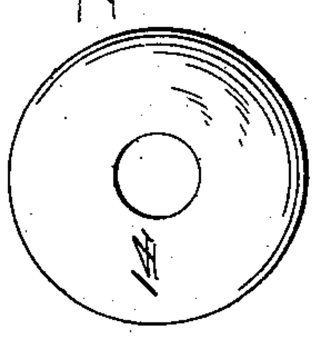

Fig. 2.

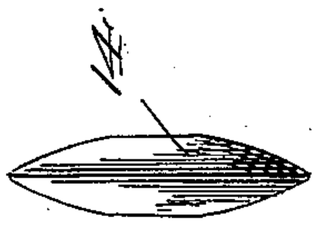

Fig. 1.

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STEAM-BOILER CLEANER.

SPECIFICATION forming part of Letters Patent No. 618,465, dated January 31, 1899.

Application filed December 27, 1897. Serial No. 663,594. (No model.)

To all whom it may concern:

Be it known that I, CLINTON E. KING, a citizen of the United States, residing at Quincy, Adams county, Illinois, have invented certain new and useful Improvements in Steam-Boiler Cleaners, of which the following is a specification.

My invention relates to steam-boiler cleaners of that class in which a blow-off device is employed for discharging the scum, scale, and the like from the boiler. The device includes a skimmer to take the scum from the surface of the water and a pipe in connection therewith having perforations to permit the mud and scale or other precipitates to be forced therein, when an outlet therefor is provided by turning on the blow-off cock.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of a boiler, showing the device in position; and Fig. 2 is a detail view.

This device is preferably adapted to be operated after the scale on the boiler-shell has been loosened and precipitated to the bottom of the boiler, preferably by a suitable cleansing solution. An ordinary horizontal boiler 1 is shown in the accompanying drawings, provided with the flues 2, extending from end to end thereof, and a manhole 3, located in the lower part of one head of the same.

A pipe 4 extends along the bottom of the boiler through one end of the same and through the brickwork 5, its outer end being provided with a cock 6. This pipe is slightly raised above the bottom of the boiler by a pair of disks of wood or of suitable metal slipped thereon near each end of the same, as will be more particularly described hereinafter. The bottom of the pipe 4 is provided with perforations 7 at frequent intervals along its entire length to provide the means of communication from the boiler thereto. A coupling 8, screwed upon the end of the pipe 4, near the manhole 3, has a reduced portion in which a branch pipe 9 is held. The latter pipe is also perforated and is deflected downwardly from said coupling to the bottom of the boiler, so that the manhole 3 will not be obstructed.

A T-coupling 10 connects a vertical pipe 11, of reduced diameter, to the intermediate part of the pipe 4, and a second T-coupling connects this vertical pipe with the intermediate portion of a second horizontal pipe 12 of the same diameter as the vertical pipe. Elbows 13 are fitted to each end of said pipe 12, having their opposite ends turned upwardly to form skimmers. When the device is placed in the boiler, the vertical pipe extends centrally of the boiler in between the flues thereof, and the upturned ends of the elbows are adapted to extend just below the surface of the water contained therein. The disks 14, before mentioned, are thickened at their centers and provided with central apertures, through which the pipe 4 passes, and they are tapered down to a thin edge at their peripheries. This gives only a slight contacting surface between said disks and the shell of the boiler, so that the burning of the latter is reduced to the minimum; but to still better provide against this the disks are made to loosely fit the pipe 4, so that they will be oscillated more or less by the steam each time the device is operated, and this frequently makes a new point of contact. One of the disks is interposed between the T-coupling 10 and the coupling 8 and the other disk is placed on the pipe 4 on the opposite side of the coupling 10.

In the operation of the device when the cock 6 is opened the steam in the boiler will force the scum on the surface of the water down through the elbows 13, forming the skimmers, and through the pipes 12 and 11 into the pipe 4 and out. The mud and scale which have been precipitated to the bottom of the boiler are forced through the perforations 7 into the pipe and carried out therethrough.

I claim—

1. The combination with a steam-boiler, of a cleaner comprising a horizontal perforated pipe in proximity to the bottom of said boiler, having a discharge outside the same, movable supports for said pipe for holding it spaced above the bottom of the boiler, and a pipe extending upward from said horizontal pipe to the surface of the water and adapted to permit the passage of steam downward therethrough, substantially as described.

2. The combination with a boiler, of a cleaner comprising the skimmers, the perforated pipe in the bottom of the boiler, the con-

nection between said pipe and the skimmers, the disk mounted on said pipe and adapted to be automatically oscillated, and the discharge for said perforated pipe, substantially as described.

3. The combination with the boiler, of the cleaner comprising the perforated pipe in the bottom of said boiler having a discharge-pipe leading therefrom, disks mounted on said perforated pipe to support the same adapted to be oscillated automatically, a vertical pipe extending centrally of the boiler between the flues thereof, a horizontal pipe intermediately coupled to the end of the vertical pipe, and upturned elbows forming skimmers fitted on each end of the horizontal pipe, substantially as described.

4. The combination with the boiler having a manhole located in one end thereof near the bottom of the boiler, a perforated pipe extending along said bottom having a discharge, means for supporting the perforated pipe above the bottom of the boiler, the skimmers and a pipe coupled to the end of said perforated pipe in proximity to the manhole of less diameter than the perforated pipe, said pipe being deflected downwardly from said coupling to the bottom of the boiler.

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

CLINTON E. KING.

Witnesses:
GEO. R. STEWART,
JOS. A. ROY.