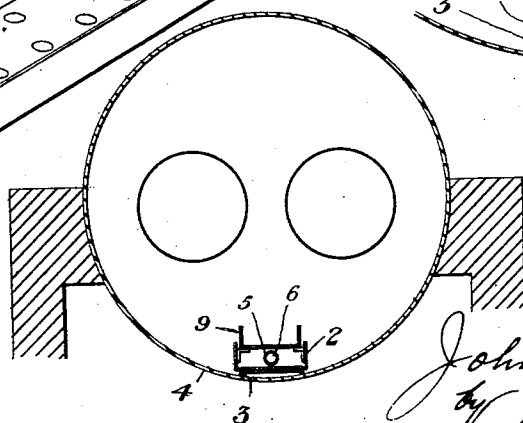
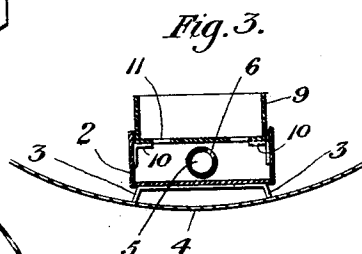
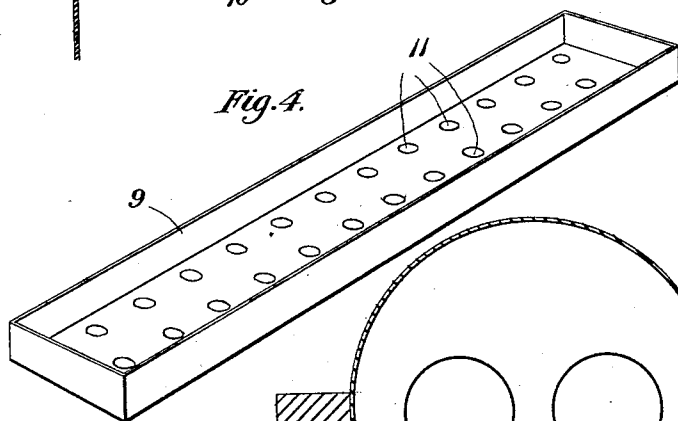
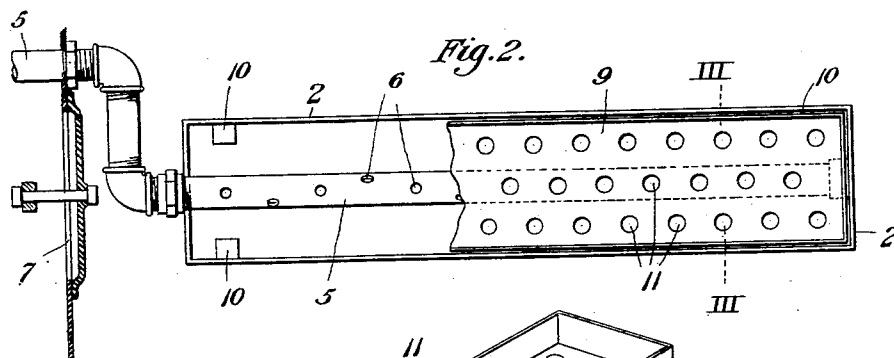
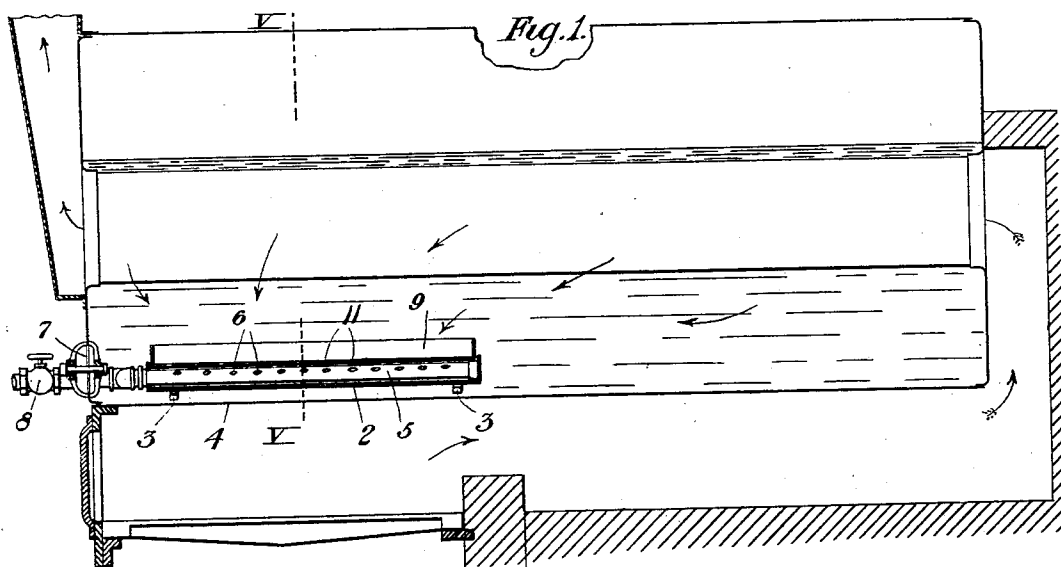


(No Model.)

J. M. McMICHAEL.
BOILER CLEANER.

No. 587,999.

Patented Aug. 10, 1897



WITNESSES.

Geo. R. Parker
Watson L. Lutz

INVENTOR

John M. McMichael
by Wm. Clark
his attorney

UNITED STATES PATENT OFFICE.

JOHN M. McMICHAEL, OF McDONALD, PENNSYLVANIA.

BOILER-CLEANER.

SPECIFICATION forming part of Letters Patent No. 587,999, dated August 10, 1897.

Application filed March 19, 1897. Serial No. 628,333. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. McMICHAEL, a citizen of the United States, residing at McDonald, in the county of Washington and State of Pennsylvania, have invented or discovered a new and useful Improvement in Boiler-Cleaners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a central vertical longitudinal section of a boiler and setting furnished with my improved cleaning device. Fig. 2 is a plan view of the apparatus on an enlarged scale. Fig. 3 is a cross-section taken on the line III III of Fig. 2. Fig. 4 is a detail perspective view of the scale-collecting pan. Fig. 5 is a cross-section taken on the line V V of Fig. 1.

My invention consists of an improved apparatus for collecting the accumulations of scale and other refuse in boilers and is designed for the purpose of preventing the accumulation of such scale and mud on the inner shell of the boiler and of collecting it ready for removal.

In the practice of using steam-boilers I have found that there is a tendency toward an accumulation of mud and scale on that part of the boiler-shell nearest to the fire, which in practice results in what is technically known as "bagging" or "blistering" of the plate owing to the exposure to the fire without the protection due to a thorough water circulation. I have also found that by agitating the water and producing a current or draft the loose particles of scale and mud will tend to flow toward and accumulate at the point of such disturbance and current. For the purpose of practically utilizing this phenomenon I have provided a shallow pan 2, having supporting-legs 3, designed to rest upon the bottom of the boiler-shell 4 and directly above the center of the furnace-chamber.

The pan 2 is preferably made of sheet-iron of a length corresponding to or slightly greater than the grate-bars, so as to cover that part of the boiler-shell which is exposed to greatest heat. A pipe 5, provided with perforations 6, is located in the bottom of the pan 2 and is carried out through the front shell of

the boiler to one side of the manhole 7 and provided with a valve 8. This pipe may extend along the bottom of the lower pan for its full length, as shown, or may be simply connected at the front or introduced for a short distance, as the contents of the lower pan will find an exit therethrough in whatever construction is used.

An upper pan 9 rests within the pan 2 upon angle-brackets 10 and directly over the pipe 5, its bottom being perforated at close intervals, as at 11.

Upon opening the valve 8 a current will be set up within the boiler tending in its direction toward the pans, as indicated by the arrows, and the scale or mud held in suspension will be drawn under action of the current produced by the flow of water outwardly through the pipe 5. In this manner the scale and mud will be accumulated in the upper pan 9, in which the scale will remain, the mud passing downwardly through the perforations 11 into the pan 2, from which it will be removed by the pipe 5, due to suction through the openings 6 whenever the valve 8 is opened and the pipe blown off.

It will be seen that the pans are of a size to permit their passage through the manhole 7 in the front of the boiler, whereby the pans and the pipe connections thereto are easily put in place and through which the upper pan may be readily removed for the purpose of emptying and cleaning.

My device is applicable to either cylinder, flue, or tube boilers, and its shape, proportions, and arrangement may be varied to suit different conditions of use by the skilled mechanic, and all such variations I consider as within the scope of my invention.

What I claim is—

1. A settling-pan, a perforated pipe located within the settling-pan provided with an extension leading outside the boiler, supporting-brackets secured within the settling-pan, and a scale-pan resting within the settling-pan upon the brackets and provided with a perforated bottom, imperforate sides and an open top, substantially as set forth.

2. In combination with a boiler, a settling-pan resting upon the boiler-shell provided with an imperforate bottom, a perforated ex-

haust-pipe located within the settling-pan
and leading outside the boiler, supporting-
brackets secured within the settling-pan, a
scale-pan resting within the settling-pan
5 upon the brackets, and provided with a per-
forated bottom, imperforate sides and an open
top, substantially as set forth.

In testimony whereof I have hereunto set
my hand this 30th day of December, 1896.

JOHN M. McMICHAEL.

Witnesses:

C. M. CLARKE,

GEO. B. PARKER.