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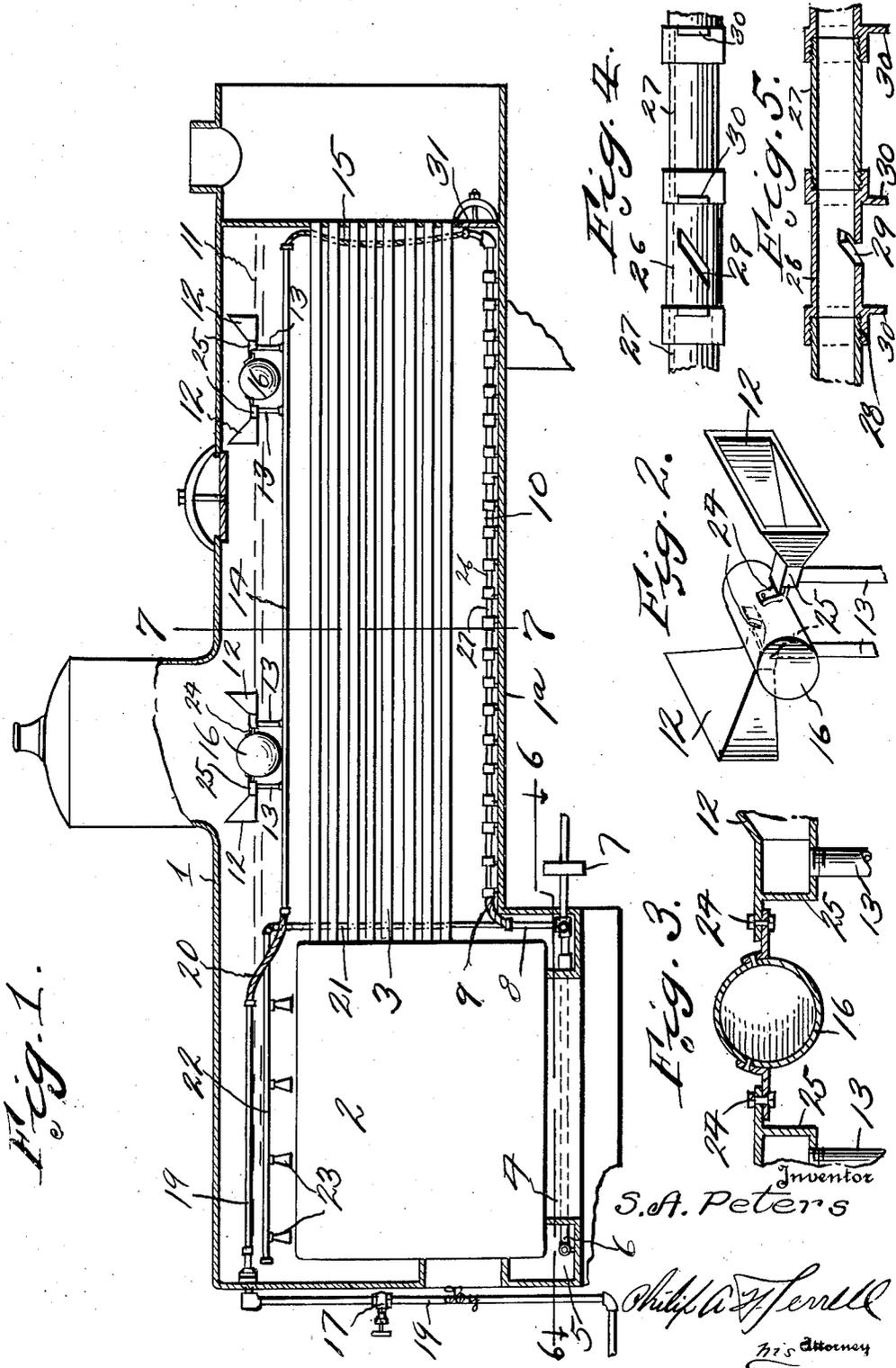
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2,055,362

BOILER CLEANER AND SKIMMER

Filed March 11, 1935

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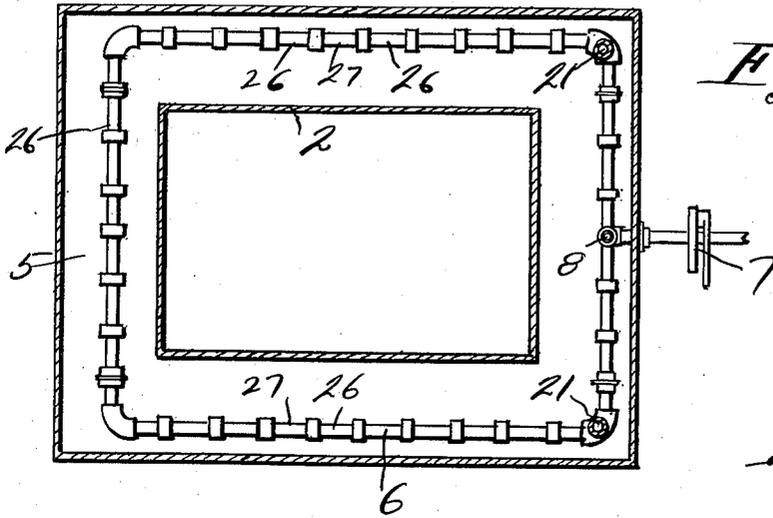


Fig. 6.

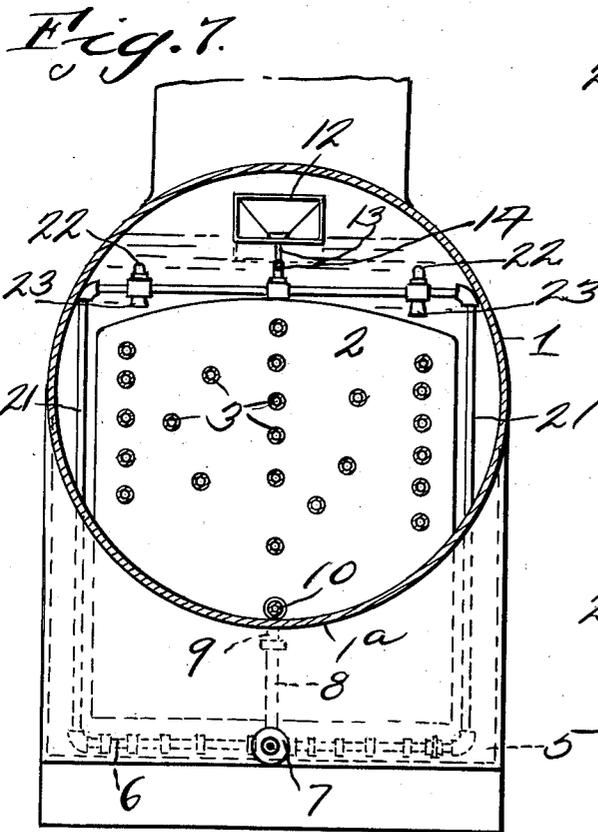


Fig. 7.

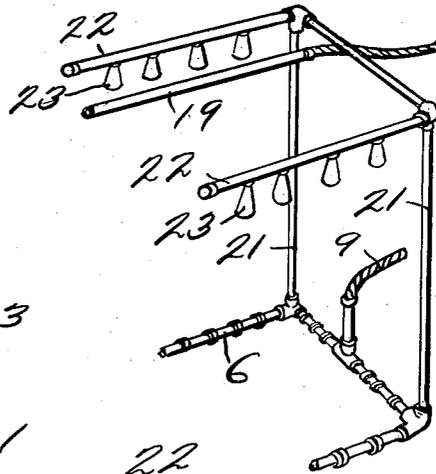


Fig. 8.

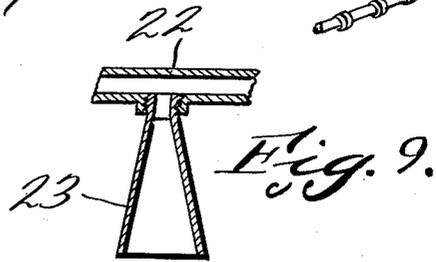


Fig. 9.

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UNITED STATES PATENT OFFICE

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BOILER CLEANER AND SKIMMER

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Application March 11, 1935, Serial No. 10,510

3 Claims. (Cl. 122—389)

The invention relates to boiler cleaners and skimmers, and has for its object to provide a device of this character comprising a scum conduit float supported within the boiler above the tubes thereof and having a flexible connection with a skimmer line extending through the wall of the boiler and valve controlled, and chambered members carried by the float and skimmer conduit at opposite sides thereof and into which skimmer members foam and scum are forced during the circulation of the water within the boiler.

A further object is to provide the skimmer conduit with upwardly extending arms supporting the oppositely extending skimmer cups and to dispose the floats between the skimmer cups and bracket connections between the floats and the skimmer cups.

A further object is to taper or flare outwardly the skimmer cups whereby scum will be gathered over a large surface of the water during the circulation of water in the boiler.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawings, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings:

Figure 1 is a vertical longitudinal sectional view through a conventional form of boiler showing the device applied thereto.

Figure 2 is a perspective view of one of the skimmer elements.

Figure 3 is a vertical longitudinal sectional view through a portion of one of the skimmer units.

Figure 4 is a bottom plan view of a portion of the conduit in the bottom of the boiler.

Figure 5 is a vertical longitudinal sectional view through a portion of the conduit in the bottom of the boiler.

Figure 6 is a horizontal sectional view taken on line 6—6 of Figure 1.

Figure 7 is a vertical transverse sectional view taken on line 7—7 of Figure 1.

Figure 8 is a perspective view of a portion of the blow-out conduits around the fire box.

Figure 9 is a vertical transverse sectional view through one of the blow-out cups above the fire box and a portion of the conduit.

Referring to the drawings, the numeral 1 designates a conventional form of boiler of the locomotive type, 2 the fire box thereof and 3 the boiler tubes, all of which is conventional structure. The

fire box 2 is supported on the usual mud ring 4 forming a chamber 5 below the fire box and in which mud collects. Disposed within the chamber 5 is a rectangular portion 6 of the gathering or mud blow off pipe, and through which mud is forced by pressure within the boiler when the blow off valve 7 is opened. Extending upwardly from one side of the blow off pipe portion 6 is a pipe 8 having a flexible pipe connection 9 which connects it to the gathering line 10 in the bottom of the boiler below the boiler tubes 3.

When it is desired to remove the mud from the bottom of the boiler chamber and from the endless chamber 5 beneath the fire box 2 the operator opens the blow off valve 7 and as the steam within the boiler above the water line 11 will pass through the skimmer cup 12 the pipes 13 connecting the cups to the skimmer line 14 and the flexible pipe connection 15 between the skimmer line 14 and the mud gathering line 10 in combination with the pressure within the boiler, mud will be forced from the boiler by pressure within the boiler. By providing the flexible connection 15 between the gathering line 10 and the skimmer pipe 14, it will be seen that the skimmer cups 12 and line 14, which are float controlled by means of the float 16, will be supported where the cups will receive scum from the top of the water in the boiler as the water circulates. When it is desired to skim the water within the boiler, the skimmer valve 17 is opened, which skimmer valve is carried by the discharge pipe 19 outside the boiler and extends into the boiler and terminates in a flexible pipe connection 20, which connects it to the skimmer line 14, therefore it will be seen there may be a skimming operation as well as a mud discharging operation from the bottom of the boiler either simultaneously or independently. Extending upwardly from the gathering line portion 6 are vertical pipes 21 which terminate in horizontal pipes 22 disposed above the fire box 2. The horizontal pipes 22 are provided with downwardly extending and flared siphon cups 23, which terminate adjacent the upper side of the fire box 2, therefore it will be seen that mud which may collect on top of the fire box may be simultaneously discharged from the boiler through the gathering line along with the mud from the bottom of the boiler as well as scale which may be disposed therein.

The floats 16 are cylindrically shaped and connected to opposite sides thereof by means of brackets 24 are the oppositely extended flared scum gathering cups 12. It will be noted that the inner ends of the scum gathering cups terminate

in rectangular shaped portions 25 having chamfers therein and that the pipes 13 connect the portions 25 to the scum pipe line 14 for the passage of the scum and they also perform the function of a supporting means for the scum cup, thereby obviating the use of special supporting brackets for the cups.

The gathering line 10 is built up from a plurality of members, which members are designated by the numerals 26 and 27. The members 26 are connected together by the members 27 which are in the form of nipples, the ends of which are threaded at 28 into the ends of the members 26. The members 26 are provided with diagonal slots 29, through which the mud and scale are forced during a boiler blowing operation. To prevent the gathering line from resting directly on the bottom 1a of the boiler and consequent clogging of the slots 29, the ends of the members 26 are provided with downwardly extending lugs 30, which engage the bottom of the boiler and maintain the gathering line upwardly spaced therefrom.

The flexible connections 9, 15 and 20 allow the pipes to accommodate themselves to the parts of the boiler and to absorb any expansion or contraction which may occur so that there will be no breakage of the pipes or repairs required. These flexible connections are also of assistance in assembling and installing the apparatus.

From the above it will be seen that a boiler

cleaning and skimming device is provided which is simple in construction and one which may be easily and quickly applied to a boiler. It will also be noted that the forward end of the boiler is provided with a clean out plate 31 which plate may be removed when it is desired to have access to the gathering line for repair purposes and that the removable clean out plate 31 is adjacent one end of the gathering line.

The invention having been set forth what is claimed as new and useful is:

1. A boiler skimmer comprising a skimmer line adjacent the water level in a boiler, upwardly extending pipes carried by said skimmer line in spaced relation, float means between said upwardly extending pipes and gathering cups supported by said upwardly extending pipes at opposite sides of the floats.

2. A boiler skimmer comprising a skimmer line, upwardly extending spaced pipes carried by said skimmer line, a float disposed between said upwardly extending pipes and skimmer cups carried by the upwardly extending pipes and forming a connection between the upwardly extending pipes and the float.

3. A device as set forth in claim 2 wherein the skimmer cups are outwardly flared and have their inner reduced ends connected to the upwardly extending pipes and the float.

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