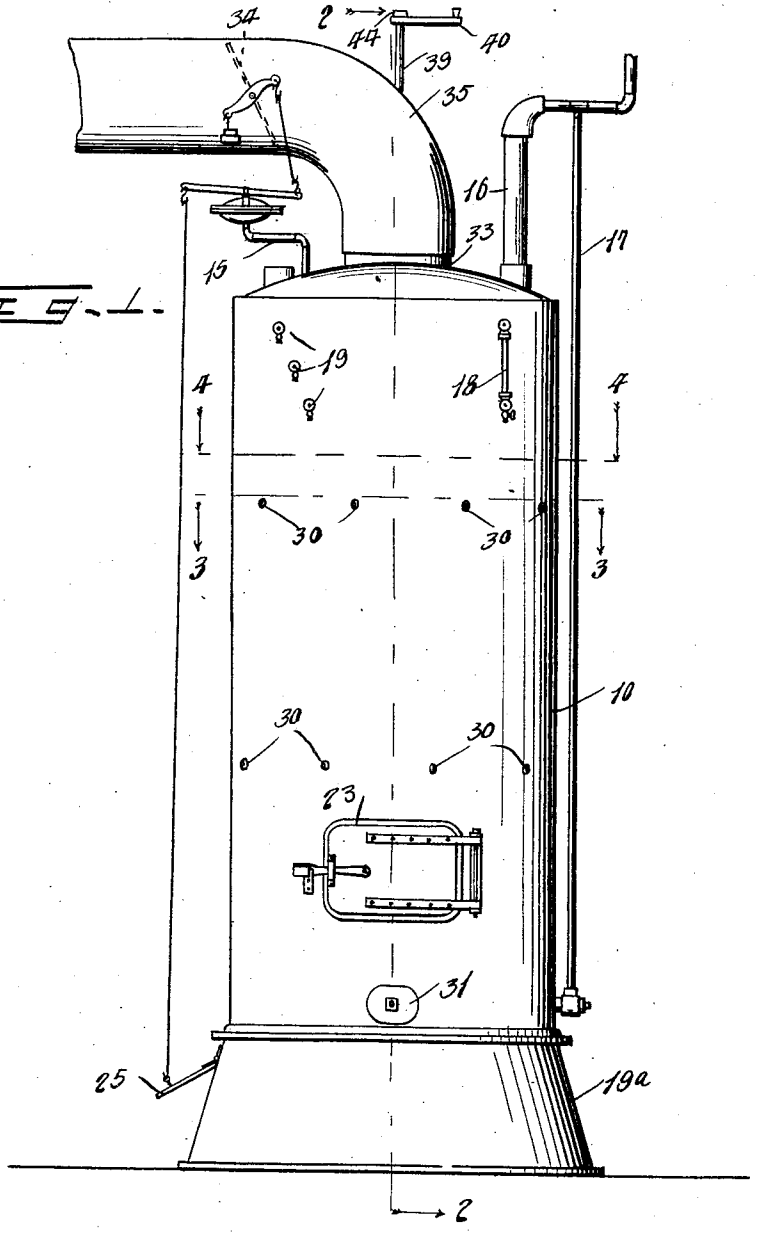
Sept. 24, 1929. R. J. COLLINS 1,729,567

LOW PRESSURE BOILER

Filed July 20, 1926 2 Sheets-Sheet 1

FIG. 1.



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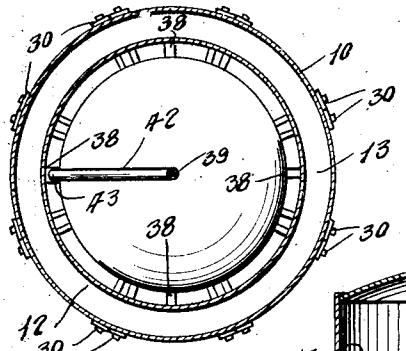


FIG. 4.

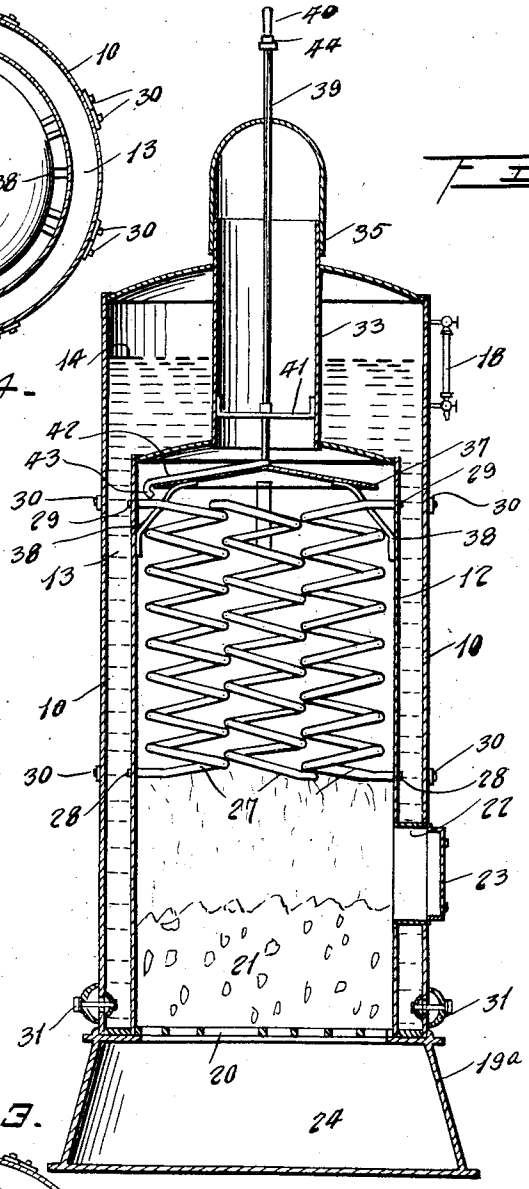


FIG. 2.

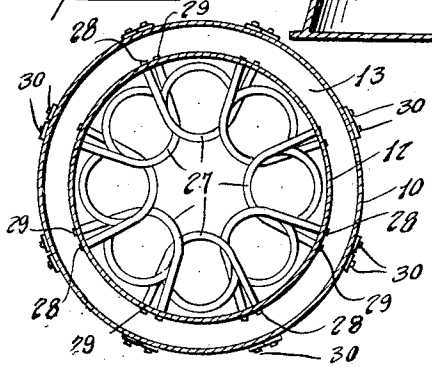


FIG. 3.

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UNITED STATES PATENT OFFICE

RICHARD J. COLLINS, OF PAWTUCKET, RHODE ISLAND

LOW-PRESSURE BOILER

Application filed July 20, 1926. Serial No. 123,636.

This invention relates to a boiler and particularly to a construction of the low pressure type.

It is aimed to generally improve articles of this character and particularly to provide a means wherein the heat will be spread to all parts of the boiler so that maximum heat may be obtained from the outside row of coils and a construction in which a small steam chamber suffices and very little water reserve is required.

Another object is to provide a novel construction wherein steam may be injected into the boiler in order to blow soot or dirt from the coils.

Additional objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawings illustrating an operative embodiment.

In said drawings:

Figure 1 is a front elevation of the device;

Figure 2 is a vertical sectional view through the device taken on the line 2—2 of Figure 1;

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 1; and

Figure 4 is a transverse sectional view taken on the line 4—4 of Figure 1 and particularly showing the steam inlet mechanism in connection with the baffle.

Referring specifically to the drawings, the boiler is primarily of the low pressure type and consists of an outer shell 10 and an inner shell 12 therein of less diameter and less height so as to provide a water space 13 adapted to contain water up to the level 14, which water is supplied as through a pipe 15 under appropriate control. From the boiler, steam passes through an outlet pipe 16 to radiators or source of use. A return pipe 17 is connected with the pipe 16 and to the space 13 adjacent the base thereof. A water gage is shown at 18 and the shell also has a plurality of try cocks 19 communicating with the water space and located adjacent the top.

The boiler is supported on a suitable casting as at 19^a, carrying a grate 20 so that a furnace is provided as at 21 at the base of the boiler. A furnace doorway 22 is provided through the boiler, being normally closed by a door at 23. The ashpit is formed in the casing 19 as at 24 and its door and doorway are shown at 25.

Any suitable number of vertical heating coils 27 are vertically disposed within the shell 11 and over the furnace, such coils preferably being arranged concentrically about the vertical axis of the shell and having inlet and outlet terminals as at 28 and 29 extending through the shell 12 and communicating with the water space 13. Such coils are preferably made of copper tubing of approximately one-sixteenth of an inch thick so that the heat may readily penetrate the same to the water. Attention is called to the fact that the terminals 28 are not soldered or welded to the shell 12 but on the contrary are expanded tightly in a leak-proof manner in place. Inspection openings are provided in the outer shell 10 opposite the terminals 28 as at 29, which are normally closed by plugs 30, removable to permit access to the said terminals as when repairing and installing new coils. Clean-out openings covered by plugs as at 31 are also provided at various locations about the boiler.

Rising centrally from the shell 12 is a flue member 33, which extends above the section or shell 10 and such extension constituting a nipple to which the discharge flue pipe 35 may be connected. A suitable damper 34 is positioned in the flue pipe 35.

Attention is called to the fact that all joints are preferably welded since the boiler is of the low pressure type and built for instance for a pressure of fifteen pounds. When the boiler is built for higher pressure, the parts must be riveted and stay-bolted, according to the pressure required.

Disposed centrally within the section 12 relatively close to the flue member 33 is a cone-shaped deflector 37, for heat, serving to spread it with respect to the various heating coils to obtain maximum use of the heat. Such spreader or deflector 37 is of greater diameter than the flue member 33 and of slightly less diameter than the shell at 12. Such spreader is mounted in any suitable manner

as by means of brackets or arms 38 fastened about and to the interior of the shell 12.

An upstanding pipe 39 is disposed centrally of the flue member 33 and has bearing at its lower end on the apex of the deflector 37, such pipe extending exteriorly of the flue pipe 35 and above the same having a suitable operating crank or handle as at 40. Said pipe is journaled in the flue section 35 and in a spider or bearing 41 within the flue member 33. Said pipe has a nozzle terminal 42 which extends across the conical upper surface of the spreader or deflector 37 and is then hooked downwardly and inwardly at 43 over the lower edge thereof. The said pipe 39 has a suitable connection as at 44 whereby it may be fastened to a source of supply of steam or the like, which is useful in cleaning the boiler, particularly about the heating coils. As the pipe 39 is journaled or rotatably mounted, manipulation of the crank 40 will serve to rotate the arm 42 so that the nozzle 43 will direct the steam or other cleaning medium to all of the heating coils for maximum cleaning.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:—

A boiler of the class described having inner and outer vertically arranged shells to provide the water space, heating means for the boiler within the inner shell, heating coils arranged within the inner shell around the vertical wall thereof and communicating with the water space, an outlet flue member extending through the crowns of said shells, a cone-shaped heat spreader within said inner shell and adjacent said member and having its edges spaced from the vertical wall of the inner shell to direct heated products toward the wall of the inner shell, an inlet pipe for a cleaning medium journaled in said member, said pipe having bearing at the apex of the spreader, and a nozzle extending from adjacent the bearing point and radially of the spreader and thence under the same and terminating in position to direct its discharge longitudinally of said coils.

In testimony whereof I affix my signature.

his
RICHARD J. × COLLINS.
mark