

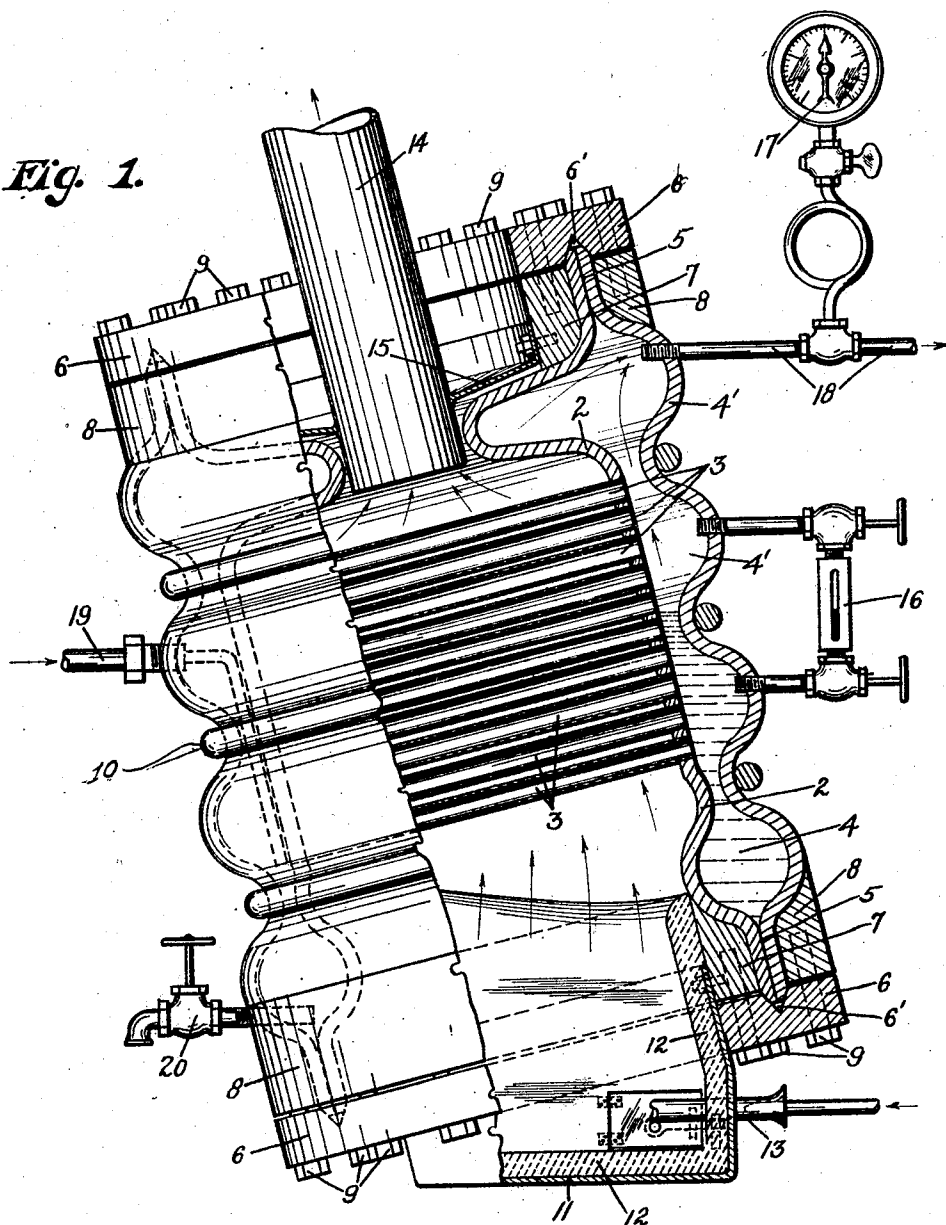
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HIGH PRESSURE BOILER
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Fig. 1.



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UNITED STATES PATENT OFFICE

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HIGH-PRESSURE BOILER

Application filed April 26, 1928. Serial No. 272,920.

My invention relates to high pressure boilers, and it has among its salient objects to provide a simple, practical and compact high pressure boiler which can be used for most purposes for which steam generating boilers are used; to provide a high pressure boiler of the character referred to which is capable of generating steam rapidly and economically and in which water can get low without injury to the boiler; to provide a boiler in which there is rapid circulation of the water; to provide a boiler of novel construction and arrangement and in which there is an inner shell with water tubes therein, crosswise thereof, and an outer corrugated shell forming a water chamber between said inner and outer shells, with fire box under the inner shell and the products of combustion and heat passing upwardly through said inner shell and around said water tubes.

In order to explain my invention, I have illustrated the same on the accompanying sheet of drawings, which I will now describe in the drawings

Figure 1 is a side elevation of a high pressure boiler, partly in vertical section, embodying my invention and showing the details of construction and arrangement.

In the drawings, 2 designates an inner shell, preferably of cold drawn steel, of substantially cylindrical form in its middle portion, with a series of small tubes, 3, 3. An outer corrugated shell is provided surrounding said inner shell and forming a water space between said shells, designated 4'. The opposite ends of said inner and outer shells are brought together, as at 5, 5, and are machined to fit closely together and to fit into V-shaped grooves or channels in the inner faces of two end plates or rings, designated 6, 6, said V-shaped grooves being designated 6', 6'. The inner shell 2, has welded around its inner side, at each end, two rings, 7, 7, and the outer shell has two similar rings welded around its outer face, at each end, and designated 8, 8, said rings being provided with screw holes to receive the screw bolts, 9, 9, with which said end plates or rings 6, 6, are fastened as will be clear from the showing. Thus by removing said end plates or rings 6,

6, it will be understood that the outer corrugated shell 4 can be removed, giving free access to the inner shell and the water tubes 3, 3.

Outer rings or bands 10, 10, are placed around said outer corrugated shell, said rings being of steel. It is to be understood that the meeting ends of the inner and outer shells are machined to fit tightly together, as well to fit closely in the V-shaped grooves in the end rings 6, 6, thus making tight joints, firmly bound together and clamped in the end rings, substantially as illustrated.

A fire box 11, is shown under the boiler, with lining of fire clay 12, or other suitable heat resisting material. An oil burner 13, is also shown, but it will be understood that any suitable heat generating means can be used. The heat and products of combustion pass upwardly inside of the inner shell 2, around the water tubes 3, 3, and out through a flue 14, held in place by means of a web 15, secured thereto and to the inner ring 7, as clearly illustrated. A water gauge 16 is also connected with the outer shell 4, and a pressure gauge 17 is connected to the upper part of the outer shell, as shown, by means of steam pipe 18, leading to any place of use. An inlet water supply pipe 19, is also shown connected through said outer shell, and a faucet 20, is connected therethrough with the water space 4'.

Thus it will be seen that I have provided a very simple and very accessible boiler of the character referred to, and while I have shown and described one practicable embodiment of the invention, I do not limit the invention to the details of construction and arrangement shown, except as I may be limited by the hereto appended claim, forming a part of this specification.

I claim:

In a boiler, in combination, inner and outer round shells one within the other and of corrugated form to form water space therebetween, the opposite ends of said shells fitting closely together one within the other and having rings welded to their outer sides with said ends between said rings and projecting beyond the same, said projecting portions be-

ing beveled on their exterior sides, end rings
or plates having grooves in their inner faces
receiving the projecting ends of said shells
and shaped for wedging them tightly to-
5 gether, screw bolts for securing said end rings
to the rings welded to the ends of said shells,
water tubes in said inner shell, a fire box un-
der said inner shell and said water tubes, and
a flue from the upper end of said inner shell,
10 substantially as described.

Signed at San Luis Obispo, county of San
Luis Obispo, and State of California, this
19th day of April, 1928.

EDWARD W. SOUTER.

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