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1,533,807

C. V. PATERNO

BOILER CONSTRUCTION

Filed Sept. 18, 1920

Fig. 1.

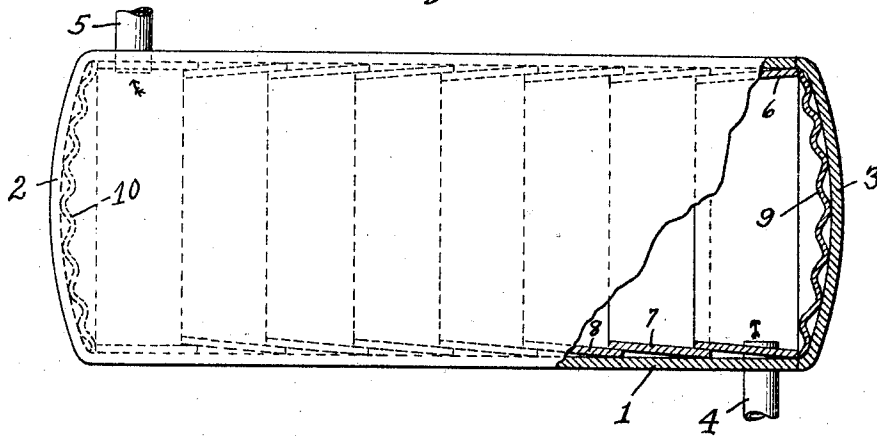


Fig. 3.

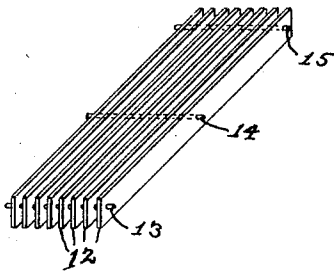
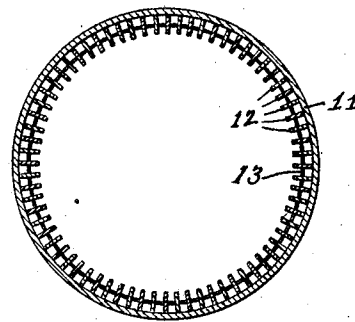


Fig. 2.



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BOILER CONSTRUCTION.

Application filed September 18, 1920. Serial No. 411,182.

To all whom it may concern:

Be it known that I, CHARLES V. PATERNO, a citizen of the United States, and resident of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Boiler Constructions, of which the following is a specification.

This invention relates to a means for preventing corrosion of boilers, hot water tanks, service heaters or the like, the object being to provide a simple and inexpensive device, in the form of a removable lining, capable of ready application to any boiler or hot water heater to protect it from the corrosive elements, such as dissolved oxygen, etc., in the water.

For a further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

Fig. 1 of the drawings is a longitudinal elevation, partly in section, of a heater tank of conventional form, showing one arrangement or embodiment of the invention.

Fig. 2 is a transverse sectional view, showing a modified form of the removable lining.

Fig. 3 is a detail perspective view showing the arrangement of the removable lining strips employed in the modification shown in Fig. 2.

As here shown, the invention is applied to a supplementary or service heater tank 1, which may be cylindrical in shape, the ends of the tank being numbered 2 and 3, respectively, and one end, such as 3, being a removable head or cap. The tank is usually a part of the hot water heating system and pipes 4 and 5 connect opposite ends thereof with the circulation system. I have not considered it necessary to illustrate the device as connected to a boiler or hot water system, as the particular type or construction thereof is not material to this invention.

Within the tank 1 are positioned a series of removable elements, preferably constructed of iron, forming a lining for the same and which by contact with the active or circulating water passing through the tank remove the gases or corrosive constituents from the water and protect the tank itself

from other than a negligible corrosive action.

In the arrangement shown in Fig. 1, these removable elements comprise a number of tapering rings, such as shown at 6, 7, and 8, which are arranged in series extending collectively from end to end of the tank, the small ends of the several rings nesting within the large ends of the adjacent ones, these rings being of a diameter to fit slidably within the tank and form a removable lining. The end members 3 and 2 are also lined with corrugated disks or plates, 9 and 10, respectively, it being understood that these plates and also the rings are loosely held in the tank so as to be easily removed when the end member 3 is taken off. The inlet and outlet conduits 4 and 5 extend through the lining rings so that the active or circulating water is caused to pass through the inside thereof. The water between the walls of the tank and the lining soon becomes deactivated by contact with the metal and remains inactive as to corrosive action on the walls of the tank.

In the modified form of the invention shown in Figs. 2 and 3, the tank is lined with a series of longitudinally extending strips 12, which strips are relatively thin and arranged in radial planes, that is, edge-wise to the tank wall. These strips are removable and may be suitably mounted on rods or wires 13, 14, 15, which hold them in position at the proper spacing. These strips 12 may extend the full length of the tank or a number of units may be used and inserted end to end in the tank.

In either modification of the invention shown, the water passing through the tank will have its corrosive constituents removed or deactivated by contact with the removable elements forming the lining, which elements may be removed and renewal from time to time as they corrode, thus protecting the tank itself from corrosion.

It will be apparent that the device is simple and inexpensive and may be arranged to be applied to any tank, boiler or hot water service heater.

It will be understood that while I have described the removable elements, such as 7 and 8, comprising the lining, as being of a material which is easily corroded, such as iron, I do not intend to limit the invention

to any particular material, as I have found in some cases that the protective lining may be made of other non-corrosive, or less corrosive material, such as copper, for instance, and perform its function of protecting the wall of the tank from the corrosive action of the active or flowing water. The principle is the same in either case and the purpose of the invention is to provide a simple protective lining which pockets or holds a portion of the water between the lining and the wall of the tank, which water soon becomes de-activated by contact with the wall and, in some cases, the lining, and thus will not have a further corrosive action on the wall, the active water being caused to flow inside of the lining and prevented from coming into contact with the wall of the tank.

What I claim is:

1. A device of the class described, adapted for use with a tank, comprising a removable lining therefor adapted to react with the water passing through said tank to remove the corrosive constituents from said water,

said lining being made up of a series of tapering rings nested partially one within the other.

2. A device of the class described, adapted for use with a tank, comprising a removable lining constructed in part of a series of tapering rings nested partially one within the other and extending collectively from end to end of the tank and in part of corrugated plates extending across the ends of said tank, and inlet and outlet conduits for said tank extending through said lining.

3. A device of the class described adapted for use with a tank, comprising a removable lining of readily corrosive material substantially parallel to and in engagement with the inner wall of said tank, and inlet and outlet conduits extending into said tank through said lining, said lining being formed of a plurality of removable sections.

Signed at New York city in the county of New York and State of New York, this 26th day of August, A. D. 1920.

CHAS. V. PATERNO.