(No Model.)

J. POLLOCK.

APPARATUS FOR PREVENTING INCRUSTATION IN BOILERS.

No. 435,518. Patented Sept. 2, 1890.

Fig. 1.

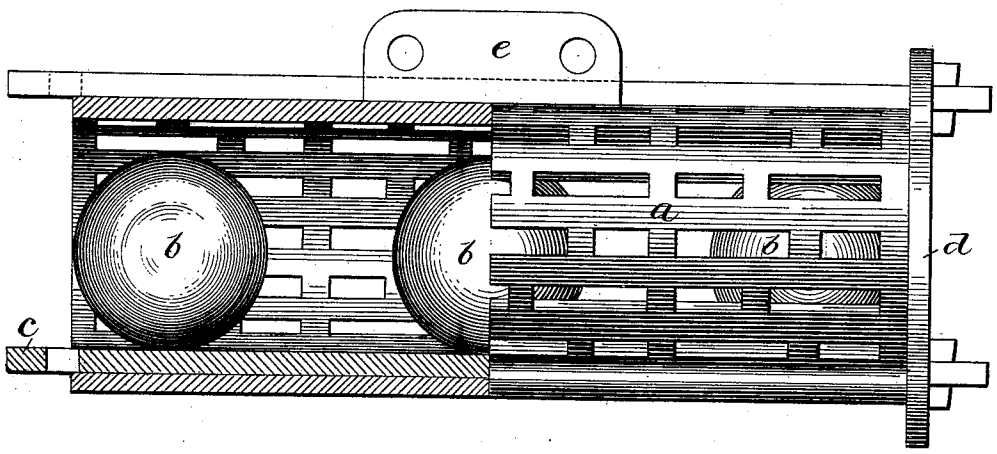


Fig. 2.

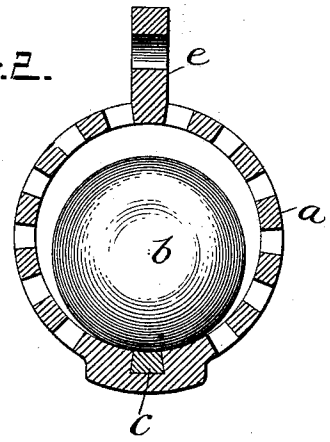
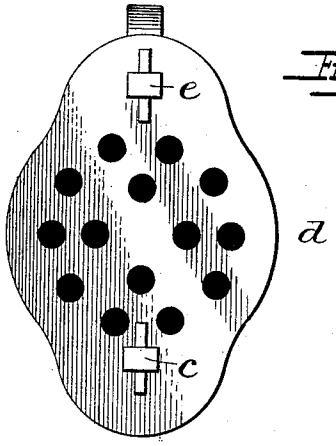


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN POLLOCK, OF BELFAST, IRELAND.

APPARATUS FOR PREVENTING INCRUSTATION IN BOILERS.

SPECIFICATION forming part of Letters Patent No. 435,518, dated September 2, 1890.

Application filed June 3, 1890. Serial No. 354,123. (No model.) Patented in England December 19, 1888, No. 18,556.

To all whom it may concern:

Be it known that I, JOHN POLLOCK, a subject of the Queen of the United Kingdom of Great Britain and Ireland, and a resident of Belfast, Ireland, have invented certain new and useful Improvements in Apparatus for Purifying Water in or for Use in Steam-Boilers, (for which I have received a patent in Great Britain and Ireland on the 19th day of December, 1888, No. 18,556,) of which the following is a specification.

My invention relates to the purification by chemical or galvanic action of water used in steam-boilers; and my object is to prevent the metal employed in producing such action from becoming incrusted, and thus ceasing to act. For this purpose I introduce into the boiler, or at some convenient and suitable part of the conduit or feed-pipe through which the supply-water flows into it, a chest or chamber having within it a bar or rod of copper, to which the water has access through perforations or orifices in the walls or ends of the chest or chamber.

In the chest or chamber I place a number of cylinders or balls of zinc, which roll upon the bar or rod of copper and create a chemical or galvanic action in the chest or chamber, whereby corrosion and the deposit of the scales or coating on the boiler-plates are prevented, while the friction of the cylinder or balls with the bar or rod or bars or rods caused by the circulation of the water, and in case of marine boilers, the rolling and pitching of the steam-vessels, keeps both themselves and it or all of them clean and bright, and the chemical or galvanic action is maintained continuously. The bar or rod of copper is dovetailed into the bottom of the chest or chamber, and where balls of zinc are used the bar or rod may be hollowed or grooved, so as to form a channel for the balls to roll in, or two or more bars may be similarly introduced into the chest or chamber, but so as to project above the bottom thereof, and serves as rails for guiding the balls when in use and for preserving the connection of the zinc with the copper in marine boilers during the rolling of the steam-vessel. I may, however, in some cases dispense with the use of the bar or rod or bars or rods. The cylinders or balls being in time eaten and worn away by the actions above described and indicated, may be replaced, when necessary, through a door in the end or other convenient part of the chest or chamber. I prefer to introduce the chest or chamber within the boiler, and may so employ several of such chests or chambers simultaneously, or I may place some within the boiler and some or one as auxiliaries or an auxiliary thereto upon the conduit or feed-pipe, and where the chest or chamber is placed upon the conduit or feed-pipe I prefer to have it at the boiler end thereof; and in order that my said invention may be more fully understood I shall now proceed to refer to the several drawings on the sheet annexed hereunto, the same letters of reference being used throughout all the figures to indicate the same or corresponding parts of my apparatus.

Figure 1 is an elevation of a perforated chest or chamber, partly in section, showing the copper bar or rod and zinc balls with a flange by which the same may be attached to a stay or hanger in the boiler. Fig. 2 is a cross-section of the same, and Fig. 3 is an elevation of a perforated door at one end of the chest or chamber whereby the cylinders or balls are introduced.

a is the perforated chest or chamber.

b b b are the zinc cylinders or balls.

c is the copper bar or rod.

d is a perforated door, and *e* is a flange by which the chest or chamber *a* may be suspended in the boiler.

Having thus described my invention, what I claim is—

1. In an apparatus for purifying water in steam-boilers, a copper strip or rod and a zinc ball or cylinder arranged to move in contact with each other, substantially as and for the purpose described.

2. In an apparatus for purifying water in steam-boilers, a perforated chest having a copper rod provided with zinc balls rolling in contact therewith, substantially as and for the purpose described.

3. In an apparatus for purifying water in steam-boilers, a chest or cylinder provided with a strip or rod of copper and one or more zinc balls or cylinders rolling thereon, the chest being provided with a perforated door, as and for the purpose described.

4. In an apparatus for purifying water in steam-boilers, a perforated chest or cylinder having a perforated door and a suspension-flange, a copper rod or strip in the chest, and zinc balls or cylinders rolling on the strip or rod, substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN POLLOCK.

Witnesses:
A. O. FELT,
HUGH HYNDMAN.