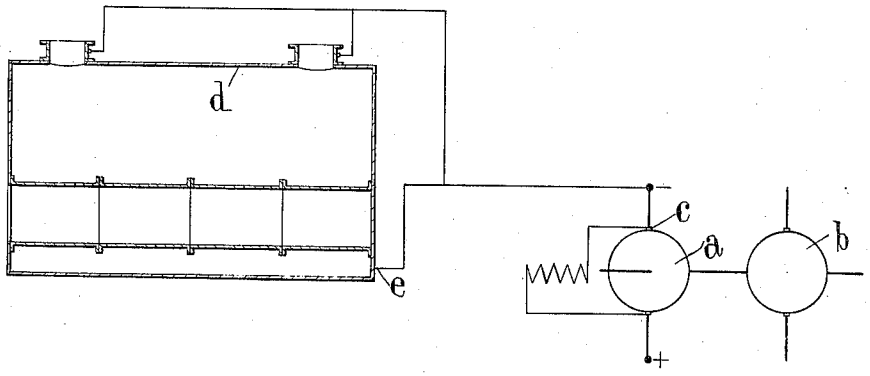
K. SCHNETZER.

METHOD OF PREVENTING THE FORMATION OF SCALE IN STEAM BOILERS, EVAPORATORS, ECONOMIZERS, AND THE LIKE.

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1,436,686. Patented Nov. 28, 1922.



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UNITED STATES PATENT OFFICE.

KARL SCHNETZER, OF AUSSIG, BOHEMIA, ASSIGNOR TO ELISABETH MARGARET EMMA JOHANNA BEDFORD, OF MARDEN, KENT, ENGLAND, AND ROBERT NEWBALD KAY, OF YORK, ENGLAND.

METHOD OF PREVENTING THE FORMATION OF SCALE IN STEAM BOILERS, EVAPORATORS, ECONOMIZERS, AND THE LIKE.

Application filed February 4, 1922. Serial No. 534,184.

To all whom it may concern:

Be it known that I, KARL SCHNETZER, a citizen of the Czecho-Slovakia Republic, and residing at Aussig a. d. Elbe, Bohemia, have invented a certain new and useful Improved Method of Preventing the Formation of Scale in Steam Boilers, Evaporators, Economizers, and the like, of which the following is a specification.

It has already been proposed to use direct electric current of moderate voltage for the purpose of preventing the formation of solid scale (incrustations) and preventing corrosion of boiler plates and tubes, the negative pole of the source of current being connected with the shell of the boiler, while the positive pole is connected to an electrode which may be arranged either in a water chamber inside the boiler, or in a feed water tank outside the boiler. In the former case the electric circuit is closed through the water. In the latter case the electric circuit is partly closed through the feed pipe also. In both cases, however, the positive electrode, which is made of iron, is consumed according to the quantity of current passing, and must be renewed from time to time.

The improved method consists in dispensing altogether with a closed electric circuit, and giving the boiler, or other apparatus to be protected, a negative potential merely by connecting the said apparatus to the negative pole of a source of direct current of suitable voltage, for instance, to the negative pole of a dynamo giving direct current. The source of direct current is preferably insulated in order to prevent any loss of current by earthing.

In contrast with the known method there is in the improved method no consumption of electric energy (apart from the work, under no load, of the source of current), nor any wear of the electrodes, so that the working costs are reduced to a minimum, and the necessary attention is very simple since there is no longer any necessity for watching and regulating the strength of the current and renewing the electrodes.

The accompanying drawing illustrates diagrammatically the application of the invention to a boiler of the Cornish type. In the installation illustrated, there is provided a shunt wound dynamo *a* driven by a motor *b* and designed to give under running conditions a potential difference of, say, 225 volts at its terminals. The negative terminal *c* is connected to the boiler shell *d* at any number of points and also if desired to the economizer as by the lead *e*, while the positive terminal is entirely free and inter-connected as shown. The connection to the shell or other part to be protected may be made by means of nuts, bolts or otherwise.

Having now described my invention what I claim as new and desire to secure by Letters Patent is:—

1. A method of preventing the formation of scale in steam boilers, evaporators, economizers and the like consisting in connecting the boiler or the like to be protected at one or more points to the negative pole of an insulated source of direct current, leaving the positive pole of said source of direct current free, and causing said direct current source to be actuated.

2. The combination with a steam generator, of a source of direct current, and an electric conductor connecting the negatiye pole of said source to said generator, the positive pole of said source being free and unconnected to said generator.

In testimony whereof I have signed my name to this specification.

KARL SCHNETZER.

Witnesses:

D. NÜTTUER,
GUSTAVE ROHÉUR.