No. 786,781. PATENTED APR. 4, 1905.

F. WEIMAR.

DEVICE FOR PREVENTING INCRUSTATION IN BOILERS.

APPLICATION FILED APR. 7, 1904.

Fig. 2.

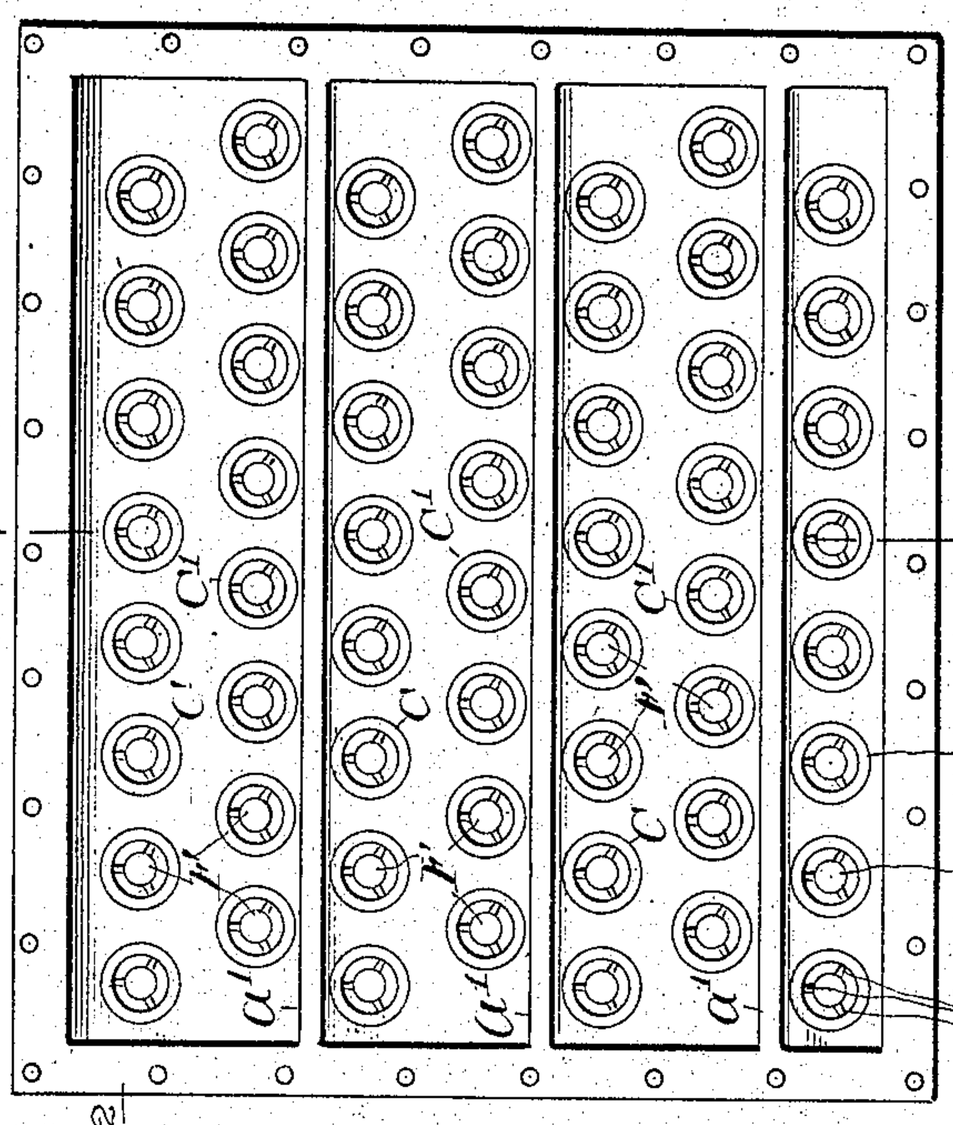


Fig. 3.

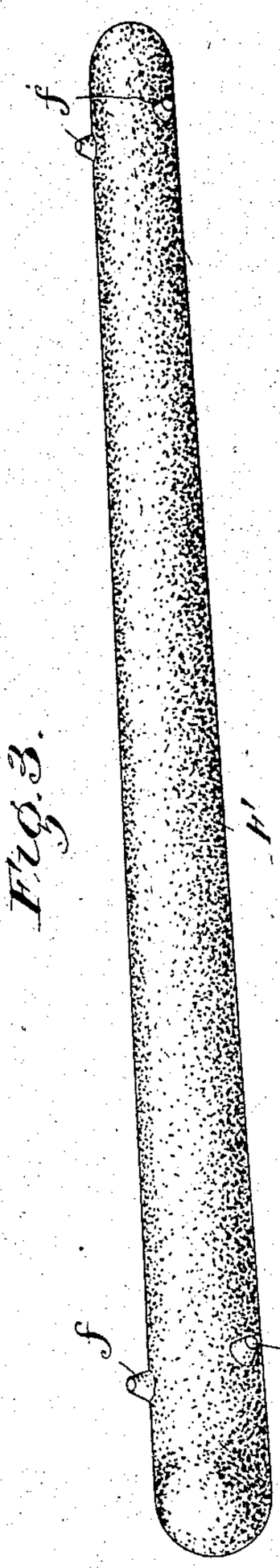
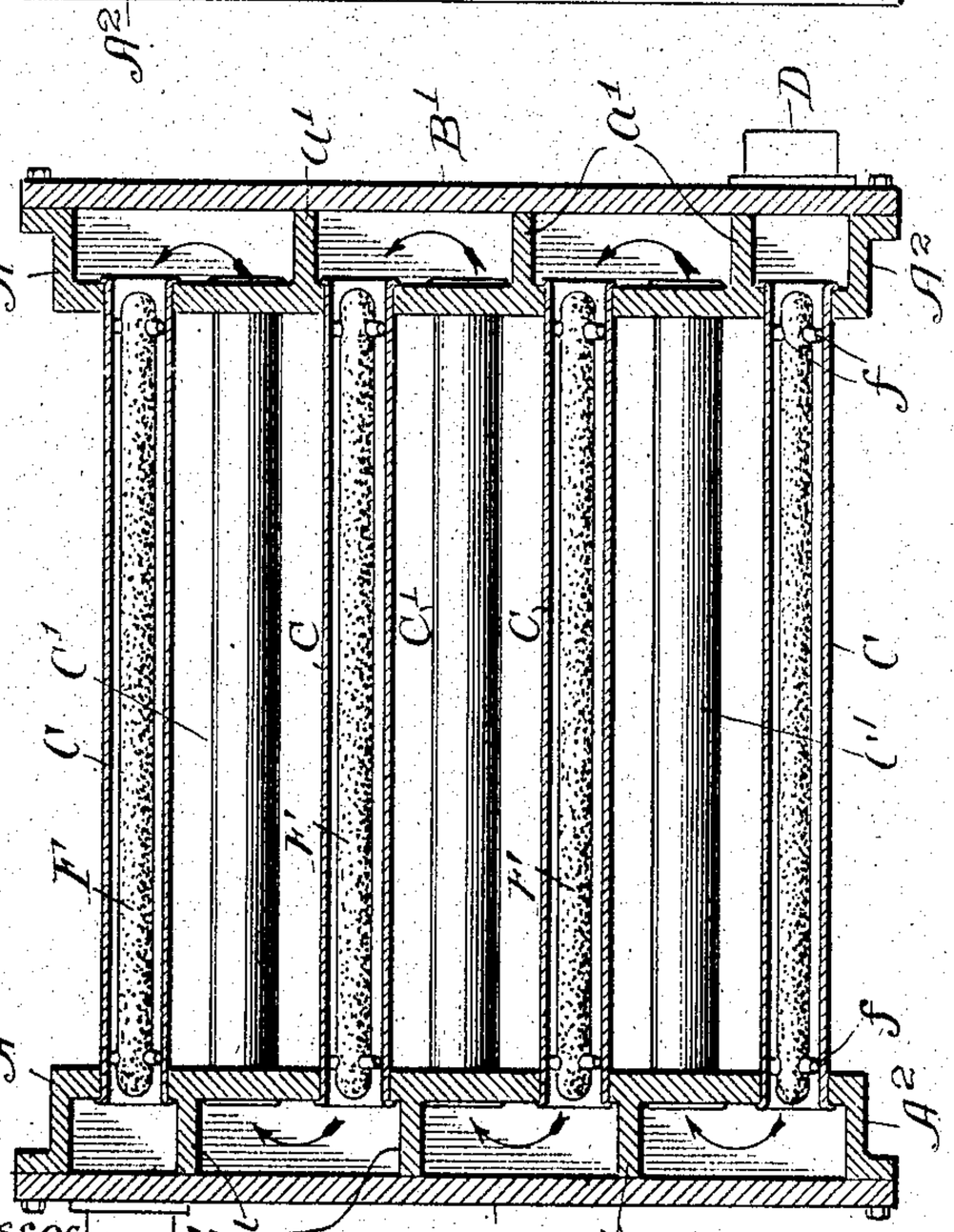


Fig. 1.



No. 786,781. Patented April 4, 1905.

UNITED STATES PATENT OFFICE.

FRED WEIMAR, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO GEORGE R. BARD, OF CHICAGO, ILLINOIS.

DEVICE FOR PREVENTING INCRUSTATION IN BOILERS.

SPECIFICATION forming part of Letters Patent No. 786,781, dated April 4, 1905.

Application filed April 7, 1904. Serial No. 201,975.

To all whom it may concern:

Be it known that I, FRED WEIMAR, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Devices for Preventing Incrustation in Boilers, of which the following is a specification.

My invention relates to certain new and useful improvements in devices for preventing incrustation in boilers; and its object is to produce a device of this class which shall have certain advantages which will appear more fully and at large in the course of this specification.

To this end my invention consists in certain novel features, which are shown in the accompanying drawings as embodied in my preferred form of construction.

In the aforesaid drawings, Figure 1 is a section of my improved boiler in the line 1 1 of Fig. 2. Fig. 2 is an end view of the same with one of the end plates removed. Fig. 3 is a perspective view of the stone of the tube-cores.

The exact construction of the preferred form of my invention will be described in full in this specification; but I do not intend by describing the details of this construction to limit myself in any way thereto, the scope of my invention being fully pointed out in the claims following the specification.

Referring to the drawings, it will be seen that each end of the boiler is a head, (indicated by A and A′, respectively.) Each head has a peripheral flange A^2, extending away from the center of the boiler, and a plurality of transverse ribs *a a′* on the heads A and A′, respectively. To the flanges A^2 on the heads are secured end plates B B′, which form, with the head and flanges, chambers at opposite ends of the boiler, the said chambers being intersected by horizontal partitions formed by the transverse ribs *a* and *a′*.

It will be seen from the drawings that the partitions *a* and *a′* are staggered, so that the partitions on one head are opposite the compartment between two partitions on the other head. Water-tubes C and C′ connect the heads A and A′ together. A nipple for the attachment of an intake-pipe is provided at D and a similar nipple for an outlet-pipe is provided at E. It will be seen that as water is admitted to the pipe D it will first fill the lower compartment between the head A′ and the end B′ and will then flow through the lowest series of tubes C to the lowest compartment between the head A and end plate B. It will then pass upward and out through the lowest series of tubes C′ to the second compartment at the opposite end of the boiler, and so on through the entire system of tubes to the exhaust-opening E. The burning gases, which heat the water, pass between the tubes C C′ in the ordinary way, thus coming in contact not only with the tubes, but with the heads at the opposite ends thereof.

In each of the tubes C C′ is a core F, preferably constructed of stone, concrete, or other porous unglazed material. Each of these cores is cylindrical in form and has at each end three integral lugs *f*, which are adapted to bear against the inner surfaces of the tubes F and support the cores centrally within the tube. These cores are designed to collect the calcareous deposit which is precipitated from hard water when it is boiled and are so constructed that they can be readily removed from the tubes by merely removing the end plates and pulling them out. By the use of these devices the boiler-tubes are kept free from incrustation, and a boiler is provided in which the incrustated parts can be removed with great facility for cleaning.

I realize that considerable variation is possible in the details of construction herein shown and described, and I do not intend to limit myself to the specific form herein illustrated, and I particularly realize that the cores F can be made of a great variety of material, and by describing them in this specification and in the claims as constructed of "stone" I do not desire to use this term in its strictest sense, but mean in the most general way a non-metallic body capable of withstanding boiler-temperatures and having a surface such as to receive readily calcareous deposit.

I claim as new and desire to secure by Letters Patent—

1. In a device of the class described, the combination with a plurality of tubes of stone cores centrally disposed within the same.

2. In a device of the class described, the combination with a plurality of tubes, of stone cores within the same and substantially out of contact therewith.

3. In a device of the class described, the combination with a plurality of tubes of stone cores centrally supported within the same, and substantially out of contact therewith.

4. In a device of the class described the combination with a plurality of tubes, of cylindrical stone cores within the tubes and projecting lugs on the cores supporting them centrally within the tubes, and substantially out of contact therewith.

In witness whereof I have signed the above application for Letters Patent, at Chicago, in the county of Cook and State of Illinois, this 31st day of March, A. D. 1904.

FRED WEIMAR.

Witnesses:
CHAS. O. SHERVEY,
RUSSELL WILE.