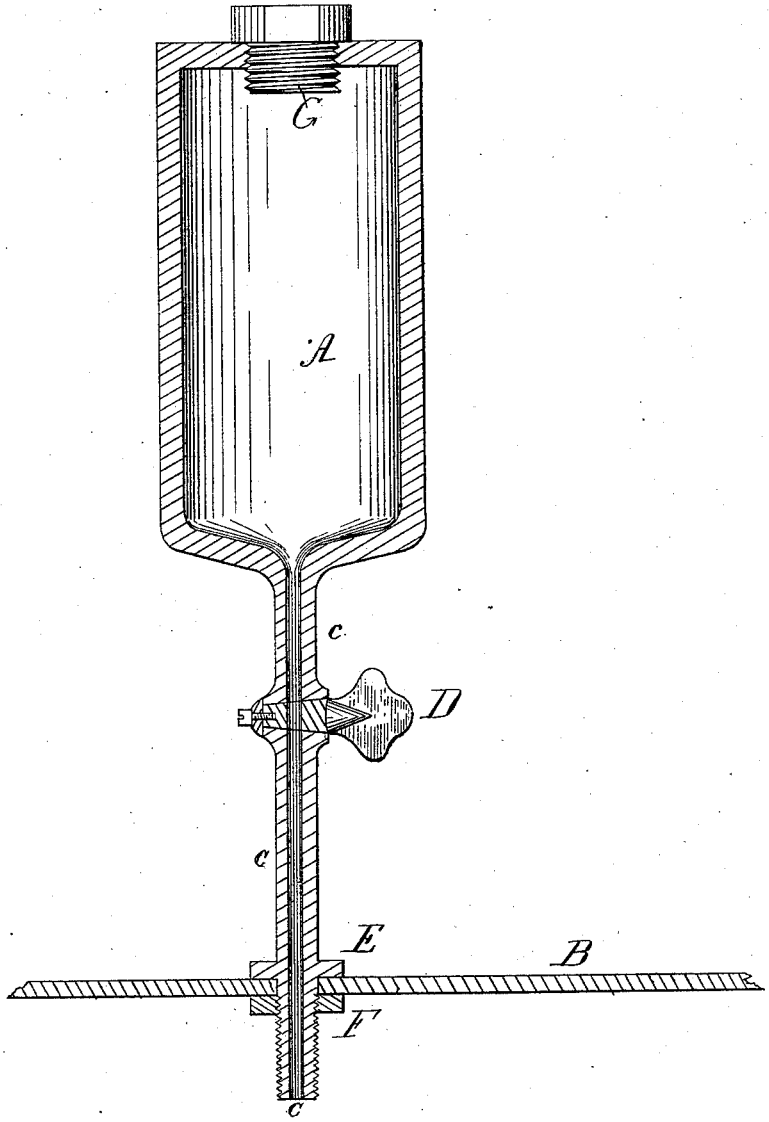
(No Model.)

J. F. PETERS.

BOILER COMPOUND FEEDER.

No. 307,220. Patented Oct. 28, 1884.



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JAMES F. PETERS, OF IRONTON, OHIO.

BOILER-COMPOUND FEEDER.

SPECIFICATION forming part of Letters Patent No. 307,220, dated October 28, 1884.

Application filed April 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. PETERS, a citizen of the United States, residing at Ironton, in the county of Lawrence and State of Ohio, have invented a new and useful Method of and Apparatus for Supplying Chemical Compounds to Boilers, of which the following is a specification.

My invention relates to improvements in that class of attachments for steam-boilers which are employed for supplying the same with chemical compounds for the purpose of removing or of preventing the formation of incrustation or "scale."

Heretofore such compounds have sometimes been fed through the man-holes or other apertures in the boilers, or they have been mixed with the feed-water, so as to be fed with it. Both of these methods are defective, for the opening and closing of a man-hole or other aperture in a boiler is troublesome, takes time, and the boiler cannot be used during the operation. Therefore these compounds, when fed through such apertures, have been fed in large charges, with long intervals between the charges, the intervals being sometimes a week, a fortnight, or even a month in length. A chemical compound so fed is, to a large extent, wasted, and is inefficient to prevent or remove scale or incrustation. The charge is in excess of the requirements of the water in the boiler at first, and the chemicals soon lose their efficiency, being diluted by the fresh water fed into the boiler, and being removed with the dirty water drawn from the boiler. Consequently the water has none of the compound mixed with it during the greater part of the time between two chargings, and incrustation is not prevented. When the compounds are mixed with feed-water, they are also wasted and lose much of their efficiency, because they do not completely dissolve in or mix freely with cold water, but require the heat of the boiler to effect their proper and effective solution and to develop their powers of preventing incrustation, and when mixed with cold water they are to some extent changed in their chemical relations. Therefore mixing them with feed-water has not proved satisfactory.

An apparatus has before been devised for application to the top of a boiler, independently of the man-hole thereof, such apparatus being closed at all points except at its bottom, where it is connected to the boiler. Under that construction it is necessary to detach the apparatus from its position upon the boiler when the apparatus is to be supplied with the scale-preventing compound, and this detachment renders it necessary to discontinue the use of the boiler as a source of steam-supply, just as when the compound is supplied to the boiler through the man-hole thereof.

The object of my invention is to provide an apparatus which can be easily attached to any boiler, and by which boiler compounds can be fed in small charges at short intervals while the boiler is being used. I attain this object by the mechanism illustrated in the accompanying drawing, which is a vertical section showing my boiler-compound feeder attached to a cylindrical horizontal boiler.

A is a cylindrical vessel capable of holding about a pound-weight of any boiler compound. B is the boiler. C is a tube formed with and being a continuation of receiver A. D is a steam cock or valve by which communication between receiver A and boiler B is opened or closed at pleasure. E is a flange formed on tube C and resting on the shell of boiler B. F is a screw-nut screwed onto tube C, within boiler B, to fasten the feeder to the boiler. G is a movable steam-tight cover for receiver A.

I have shown cap G as a common screw-cap; but any known steam-tight cover will answer; also, any known means for fastening fixtures to boilers may be used instead of flange E and nut F; and any equivalent for a steam-cock may be used instead of steam-cock D.

When charging this feeder, I close tube C by turning valve D, take off cap G, put the charge in receiver A, replace cap G steam-tight, and then open tube C by turning valve D. If the charge be of a liquid, it flows into the boiler, steam taking its place. If it be of a solid, the steam soon liquefies it. It flows into the boiler and steam takes its place. I repeat the charging at least every day, so as to keep the water in the boiler constantly supplied with the chemicals to prevent incrustation.

It will be understood that the lower end of the tube C within the boiler extends below the ordinary water-level, so that the compound

will pass by its own gravity into the lower portion of the water-space.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a boiler, of a receiver, A, secured to the top of such boiler, and provided with a single inlet-opening at its upper extremity, and with a discharge-opening at its lower extremity, such lower extremity terminating within the boiler at a considerable distance below the top of the same, substantially as shown and described.

2. In combination with a boiler, a receiver, A, provided with a central inlet-opening at its top which is adapted to be closed by a cap or valve, G, with an outlet-opening which is adapted to be closed by a single valve or cut-off, D, and with a discharge-tube which extends downwardly from the chamber of the receiver into the body of the boiler.

JAMES F. PETERS.

Witnesses:

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