

No. 888,469.

PATENTED MAY 26, 1908.

G. W. CASE & H. C. HAGGERTY.

DEVICE FOR SUPPLYING SCALE REMOVAL COMPOUNDS TO BOILERS.

APPLICATION FILED AUG. 22, 1907.

2 SHEETS—SHEET 1.

Fig 1

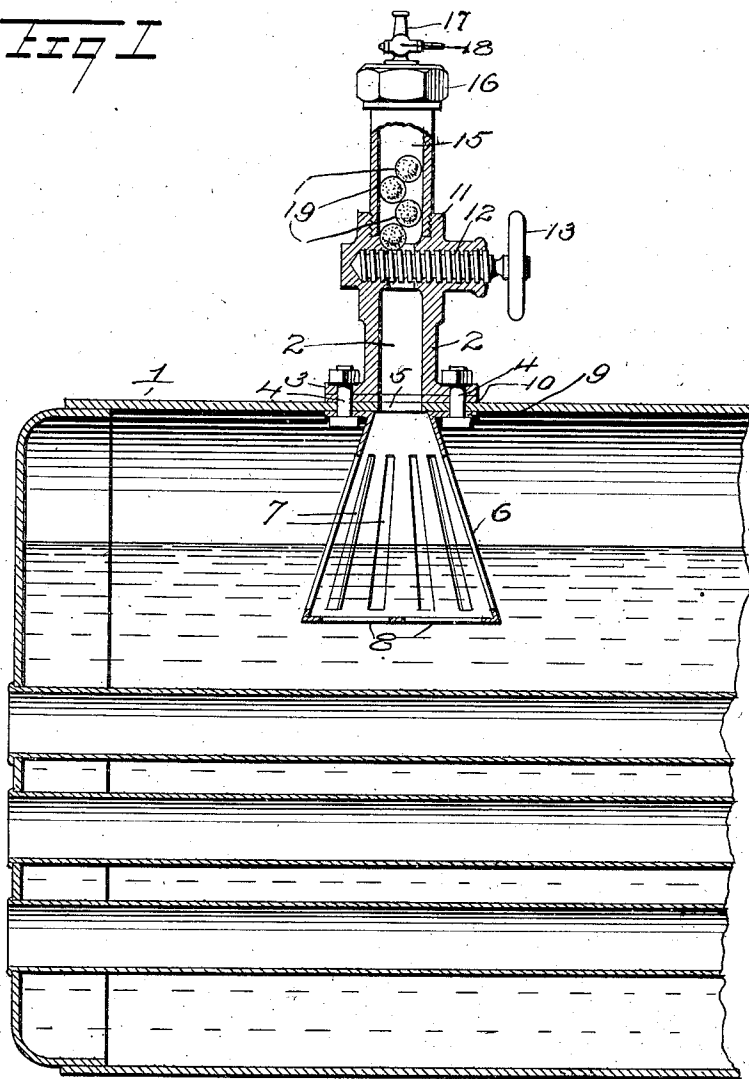
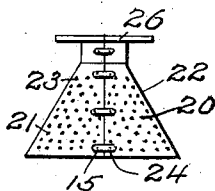


Fig 2



WITNESSES:

James E. Buncleigh
H. A. Ward

INVENTORS

George W. Case
Harry C. Haggerty
BY
A. N. Gilbert
ATTORNEY

No. 888,469.

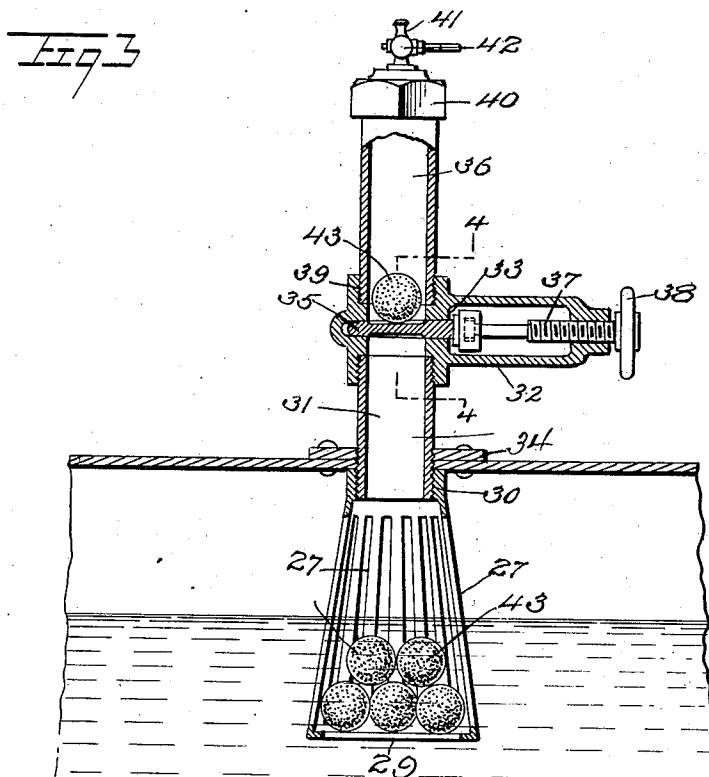
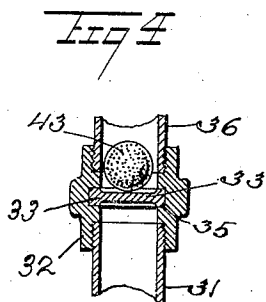
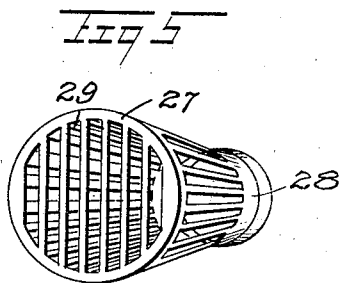
PATENTED MAY 26, 1908.

G. W. CASE & H. C. HAGGERTY.

DEVICE FOR SUPPLYING SCALE REMOVAL COMPOUNDS TO BOILERS.

APPLICATION FILED AUG. 22, 1907.

2 SHEETS—SHEET 2.



WITNESSES:

R. H. Ward
W. H. Jacobs

INVENTORS

George W. Case
Harry C. Haggerty

BY

J. N. Gilbert
ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE W. CASE, OF LESTERSHIRE, AND HARRY C. HAGGERTY, OF BINGHAMTON,
NEW YORK.

DEVICE FOR SUPPLYING SCALE-REMOVAL COMPOUNDS TO BOILERS.

No. 888,469.

Specification of Letters Patent.

Patented May 26, 1908.

Application filed August 22, 1907. Serial No. 389,673.

To all whom it may concern:

Be it known that we, GEORGE W. CASE and HARRY C. HAGGERTY, citizens of the United States, residing the former at Lestershire and the latter at Binghamton, in the county of Broome and State of New York, have invented certain new and useful Improvements in Devices for Supplying Scale-Removal Compounds to Boilers while Under Steam-Pressure; of which the following is a specification.

This invention relates to improvements in means for supplying scale removing compounds to boilers and particularly to means for supplying the compounds to boilers while under pressure.

The invention comprises the provision of a cage positioned in a boiler and means connected therewith on the outside of the boiler, the means on the outside of the boiler being formed into a plurality of chambers one of which is in continuous communication with the cage and the other of which is designed to be cut off from communication with the cage.

The invention further comprises the provision of means for receiving a compound for removing scales and a valve for permitting communication between said means and a boiler during the time the boiler is under steam pressure.

The object in view is the provision of a compound receiving tube or receptacle divided in compartments one of which is designed to receive the compound and to be normally cut off from the boiler and the other of which is designed to be in constant communication with the boiler so that when the two chambers are brought into communication with each other the compound may pass into the boiler while the same is under pressure.

Another object in view is the provision of a basket or receptacle for receiving a compound for removing and preventing incrustation in boilers and means for supplying at intervals compounds to said receptacle regardless of whether or not the boiler is under pressure.

With these and other objects in view the invention comprises certain novel constructions, combinations and arrangements of parts as will be hereinafter more fully described and claimed.

In the accompanying drawing:—Figure 1

is a fragmentary sectional view through a boiler with the present invention secured thereto. Fig. 2 is a slightly modified form of cage or receptacle forming part of the present invention. Fig. 3 is a section through part of a boiler and a slightly modified form of the present invention. Fig. 4 is a fragmentary sectional view taken approximately on line 4—4 of Fig. 3. Fig. 5 is an isometric perspective of a cage shown in Fig. 3 forming part of the present invention.

In using ordinary water in steam boilers it has been found that more or less scales or incrustations are caused by various matters in the water and various means have been provided for preventing such scales and incrustations. The present invention relates more particularly to means for inserting a compound into the boiler and in contact with the water at all times, either during the time the boiler is under steam pressure or when it is not in use.

Referring more particularly to the drawing 1 indicates a boiler of any desired type to which the present invention is designed to be secured either by bolting as seen in Fig. 1 or by being screw threaded and secured thereby into the boiler as seen in Fig. 3. Various other ways as will be evident may be used to secure the device in position within the spirit of the invention. The only particular requisite in securing the device in position is that it shall be tight so as not to permit the escape of steam from the boiler.

2 indicates a tube or chamber which has a flaring end as 3 through which bolts 4 are designed to be passed for securing the chamber in position on the boiler. In positioning the chamber 2 upon the boiler an aperture 5 is provided in the boiler that is designed to register with the interior bore of the chamber 2 so as to provide a constant and free communication between the boiler 1 and chamber 2.

Positioned within the boiler 1 is a basket or receptacle 6 that is preferably formed from cast material and provided with a plurality of apertures 7 and 8 formed in the sides and bottom for permitting free communication for the water and steam in the boiler 1. The basket or receptacle 6 preferably formed substantially bell shaped as seen in Fig. 1, is provided with an annular flange 9 similar to the flange 3 for accommodating bolts 4 so that when in position the bolts 4 will pass through flange 9, the shell of boiler 1, a pack-

ing ring 10, and an annular flange 3. The packing ring 10 may be of any desired kind for making the joint tight. By this construction anything in chamber 2 may freely drop into basket 6 so that whenever any scale removing or preventing compound is inserted into chamber 2 it will immediately drop into basket 6 and thus come in contact with the water in the boiler as the lower part of the chamber 6 is designed to be always below the water level in the boiler.

The upper part of chamber 2 is formed with an enlarged portion 11 which is designed to accommodate a valve 12 that is operated by a hand wheel 13 of any desired kind so that when the hand wheel is turned in one direction the chamber 2 is in free communication through passage way 14 with the second or auxiliary chamber 15. When turned in the opposite direction the valve 12 will close the opening 14 and prevent any matter from passing chamber 15 to chamber 2 and also prevent any steam from passing from chamber 2 to chamber 15. Chamber 15 is preferably threaded into an enlarged portion 11 as seen in Fig. 1 so that the same may be removed easily and repaired. Upon the upper end of chamber or housing 15 is a cap 16 that has mounted thereon a relief opening 17 that in turn is provided with a valve 18.

In operation when it is desired to supply boiler 1 with some scale removing or preventing compound of any desired kind preferably of the kind that may be formed into blocks or balls as metal, amalgam, or other chemical compound, cap 16 is removed and the compound as 19 is placed in chamber or housing 15, the valve 12 being closed. Cap 16 is then replaced on housing 15 and valve 18 closed. Valve 12 is then opened and steam is permitted to enter from chamber 2 into chamber 15 and the compound 19 is permitted to drop by gravity into chamber 2 and from thence into basket 6. After the compound has passed into basket 6 and valve 12 closed, the valve 18 is opened so that the confined steam in housing 15 is permitted to escape. The cap 16 is then removed and another supply of scale removal or preventing compound is placed in housing 15 and cap 16 again placed in position. The device is then in condition for again recharging or refilling the basket 6. After the compound in basket 6 has dissolved all that will be necessary to recharge the same is to open valve 12 and a second charge will drop in the basket 6. In this way the boiler may be provided with a compound as often as desirable, regardless of whether or not the same is under pressure.

In Fig. 2 will be seen a slightly modified form of basket that is designed to be used in a similar manner to basket 6. In this figure the basket is formed in two parts 20 and 21 preferably of cast metal. In casting the

same a plurality of openings 22 and 23 are provided of any desired shape either round or in slots as seen in basket 6. The parts 20 and 21 are formed with flanges 24 and 25 through which bolts, rivets or screws are designed to be passed for securing the parts 20 and 21 together. An annular flange 26 is provided for permitting the basket to be bolted in position in a similar manner to basket 6.

In Figs. 3 to 5 inclusive will be seen another slightly modified form of the present invention. In this form of invention a basket 27 is provided that is preferably constructed of cast material and formed in one piece with a plurality of openings 28 and 29 through which the water in the boiler 1 may pass. One end of the basket is formed solid and is screw threaded at 30 for receiving a pipe or housing 31. The pipe or housing 31 is designed to support and hold in correct position basket 27 and to also support a valve housing 32 to which a slide valve 33 is mounted. Surrounding pipe or housing 31 is an annular ring 34, that is riveted to the shell of boiler 1 so as to reinforce the boiler at this point and to form a reinforcement in which threads may be formed for the threads of housing 31 to engage. Ordinarily ring 34 may be simply riveted directly to boiler 1 but if desired a packing may be inserted between the boiler and the ring.

Housing 32 is designed to be formed with a way 35 in which the slide 33 is designed to move and to divide or separate the chamber formed by housing 31 from the chamber of housing 36. A screw threaded shaft 37 operated by hand wheel 38 is designed to reciprocate or move slide 33. When shaft 37 is moved inward to the position shown in Fig. 3 slide 33 divides members 31 and 36 into two chambers and prevents any steam from boiler 1 to pass into chamber 36 and also prevents any matter in chamber 36 from passing in the boiler 1.

Chamber 36 is removably secured to housing 32 by means of threaded connection 39. Housing 36 is also provided with a cap 40 that is removably secured thereto and is designed to prevent the escape of steam from the boiler when slide 33 has been moved outward by permitting member 31 to communicate with housing or chamber 36. An outlet 41 is provided in cap 40 and a valve is positioned in outlet 41 for opening and closing the same as may be desired. The operation of this form of construction of the present invention is the same as the preferred form shown in Fig. 1 namely by the removal of cap 40 and the insertion of scale removing compound 43 and then the placing of the cap 40 in position again and the opening or moving of slide 33 permits the compound 43 to drop into cage or basket 27. Valve 33 is then designed to be closed and steam ex-

hausted from housing 36 by opening valve 42. Cap 40 may be then removed and the operation repeated as often as desired.

What we claim is:

5 1. In means for supplying compounds to boilers, a receptacle positioned in a boiler, a chamber secured to said receptacle and projecting from said boiler, a receptacle designed to be brought into communication with said
10 chamber and said receptacle, and means for separating said chamber and said receptacle.

2. In means for supplying compounds to boilers, a receptacle for containing compounds, means for preventing said compounds to pass from said receptacle to the
15 interior of said boiler, and a receptacle positioned in said boiler for receiving said compounds, said receptacle being formed conical in shape and provided with a plurality of bars
20 for sides, a plurality of bars for forming the bottom, and a connecting ring for connecting the bottom bars to the side bars.

3. In means for supplying compounds to boilers, a receptacle for compounds, a removable cover secured thereto, a valve for
25 regulating the passage of compounds from said receptacle, a second valve for regulating the exhausting of pressure from said chamber, and a tube connecting said valve and
30 said boiler for permitting compounds to pass from said receptacle to said boiler when said first mentioned valve is open, the second mentioned valve being adapted to permit the
35 exhaustion of the pressure in said receptacle when the said second mentioned valve is closed.

4. In means for supplying removing compounds to boilers, a receptacle for compounds, a cap for said receptacle for closing
40 one end thereof, a housing secured to said boiler formed with an enlarged portion, a

valve member positioned in said enlarged portion for regulating the flow of compounds from said receptacle to said boiler, and a cage
45 positioned in said boiler for receiving said compound, part of said cage being positioned below the water line in said boiler for continuously holding said compound in contact with the water in said boiler.

5. In means for supplying compounds to a boiler, a receptacle for receiving compounds,
50 means for permitting compound in said receptacle to enter said boiler, and a cage for receiving said compounds, said cage being formed with converging slotted sides, a
55 slotted bottom, and an annular flange for permitting the cage to be secured in position.

6. In means for supplying compounds to boilers while under pressure, a receptacle secured to said boiler and communicating
60 with the interior thereof, a valve mounted in one end of said receptacle, a housing secured to said receptacle for receiving compound, a cap for said housing and an exhaust valve secured to said cap for exhausting pressure
65 from said housing when said first mentioned valve is closed.

7. In means for supplying compounds to boilers, a receptacle for containing compound, means for permitting said compound
70 to pass from said receptacle to the interior of said boiler, and a receptacle for said compound positioned in said boiler, said receptacle being formed with openings for the entrance of water.
75

In testimony whereof we have affixed our signatures, in presence of two witnesses.

GEORGE W. CASE.

HARRY C. HAGGERTY.

Witnesses:

WILLIAM K. JACOBS,
BENJAMIN BAKER.