No. 692,073. Patented Jan. 28, 1902.

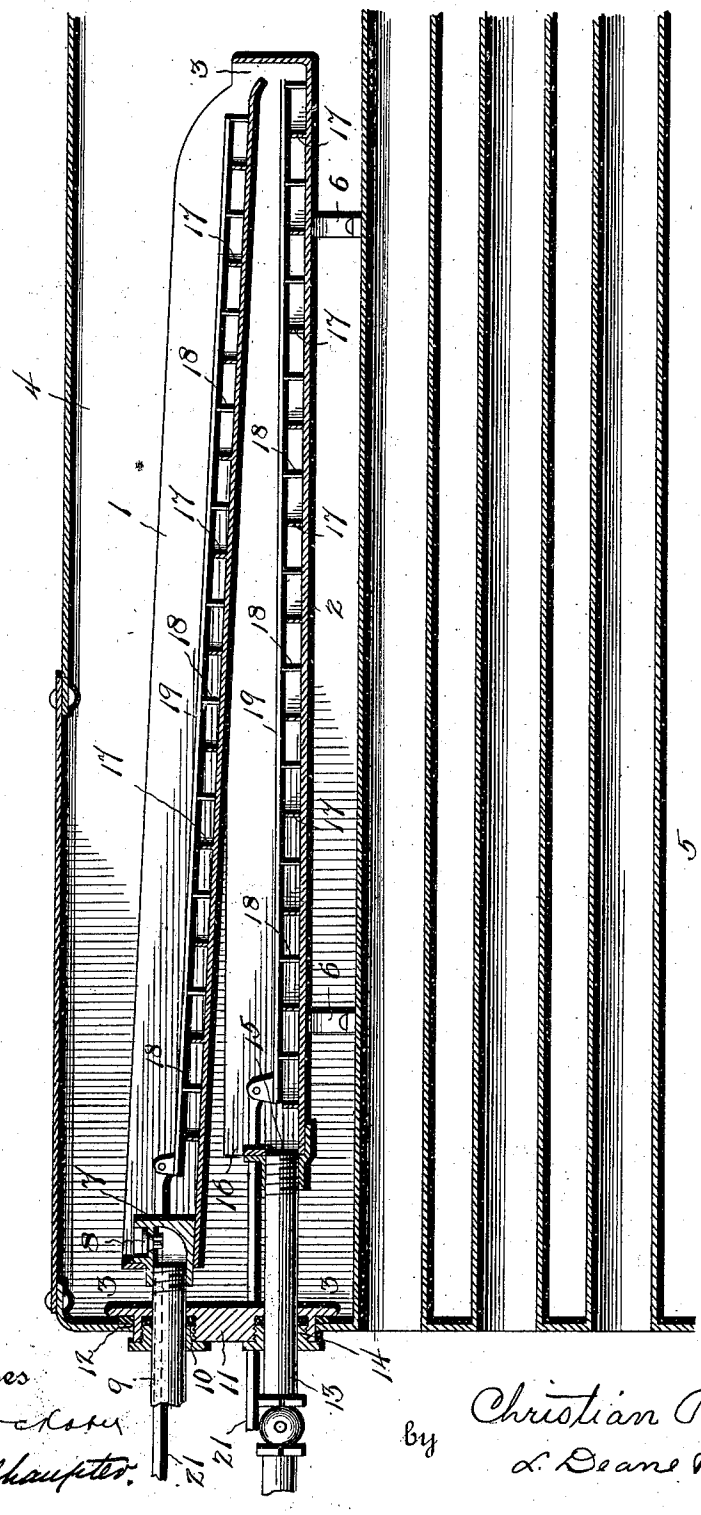
C. REISER.

BOILER FEEDING AND CLEANING ATTACHMENT.

(Application filed July 24, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

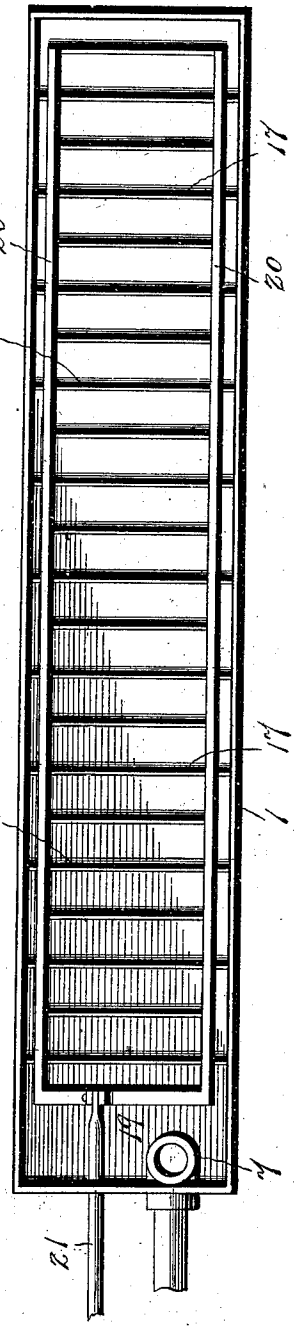
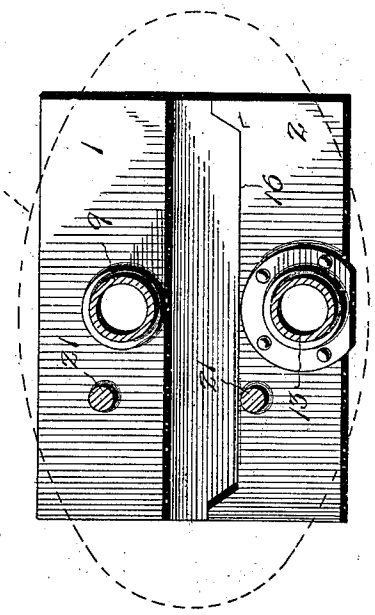


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHRISTIAN REISER, OF LAKE CHARLES, LOUISIANA.

BOILER FEEDING AND CLEANING ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 692,073, dated January 28, 1902

Application filed July 24, 1901. Serial No. 69,522. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN REISER, a citizen of the United States, residing at Lake Charles, in the parish of Calcasieu and State of Louisiana, have invented certain new and useful Improvements in Boiler Feeding and Cleaning Attachments, of which the following is a specification.

This invention relates to steam-boilers, and has special reference to means for supplying the same with feed-water and at the same time making provision for removing the scales, sediment, or mud in order to prevent the accumulation thereof within the working parts of the boiler.

To this end the invention primarily contemplates an improved feeding and cleaning attachment for steam-boilers comprising means for delivering the feed-water into the same and also embodying an improved arrangement of parts to insure the deposit of all solid matter, sediment, and the like within the area of the feeding devices and also providing for the complete blowing out or removal of such matter while the boiler is in use, hot, and under working pressure, thereby permitting the boiler to be run continuously for any length of time and cleaned out at any time.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

The fundamental features of the invention are necessarily susceptible to a wide range of modification; but a preferred embodiment is shown in the accompanying drawings, in which—

Figure 1 is a sectional view of a portion of a steam-boiler equipped with a boiler feeding and cleaning attachment embodying the present invention. Fig. 2 is a top plan view of one of the elongated feeding-pans, showing the arrangement of dams and cleaning devices associated therewith. Fig. 3 is a sectional view on the line 3 3 of Fig. 1, indicating in dotted lines the relation of such pans to the manhole in which is fitted the manhead carrying all of the connections for the feeding and cleaning devices.

Like numerals of reference designate corresponding parts in the several figures of the drawings.

In carrying out the invention the same may necessarily be associated with different types of boilers, it only being necessary that the attachment be arranged within the live-steam space of the boiler so as to be exposed to the steam-pressure; but as the attachment possesses special utility in connection with a water-tube boiler the same is illustrated in the drawings as associated with a boiler of this type.

The invention embodies in its general organization a plurality of elongated feeding-pans, through which the feed-water is delivered into the boiler, and in the preferable construction a pair of these pans are used, as shown in the drawings, said pans being designated, respectively, by the numerals 1 and 2. In the construction illustrated in the drawings the feeding-pans 1 and 2 are arranged in superposed relation one above the other and are inclined in opposite directions, so that the feed-water must run the entire length of both pans before finding an outlet or escape into the boiler from the discharging end of the lower pan.

The upper and lower feeding-pans 1 and 2 may be of any desired construction, but are necessarily of a trough-like form in order to provide a chute through which the feed-water may be circulated, and by reason of being oppositely inclined the said pans necessarily converge toward one end, at which end they are suitably united, and a circulating-opening 3 is provided at the extreme lower end of the upper pan 1 to provide direct communication between the two pans, so that the feed-water may flow from the upper pan into the higher end of the lower pan.

The two pans 1 and 2 are open at the upper side throughout their entire length, so that the feed-water passing therethrough is exposed directly to the pressure of the live steam within the boiler, and in using the invention, as shown in the drawings, the said pans 1 and 2 are designed to be supported inside of the live-steam space or drum 4 of a boiler 5 and

may be conveniently supported in position by suitable supporting-legs 6 or the like fitted to the bottom pan 2 and resting on the boiler-flues.

The upper feeding-pan 1 has suitably fitted to the higher end thereof an inlet-valve casing 7, opening directly into the pan 1, and in which is arranged an upwardly-opening check-valve 8. To the inlet-valve casing 7 is also coupled a feed-water pipe 9, extending the interior of the boiler and passing through a stuffing-box 10 in a manhead 11, suitably fitted in a manhole 12, provided in the end of the boiler. A valved blow-out pipe 13 also passes through a stuffing-box 14, carried by the manhead 11, and is connected at its inner end within the boiler to the lower end of the pan 2, so as to communicate with the blow-out hole 15. Above the plane of the said blow-out hole 15 the end wall at the lower end of the pan 2 is cut away to provide a water-outlet opening 16, through which the feed-water overflows into the boiler.

Each of the feeding-pans is provided with a series of parallel transversely-arranged fixed dams 17 in the form of short plates arising from the bottom of the pan and extending transversely across the bottom from side to side thereof. A series of these parallel dams or dam-plates 17 range from end to end of each pan, and alternating with the fixed dam-plates of each pan are a series of scraper-blades 18, carried by a reciprocatory cleaning-frame 19. The cleaning-frame 19 within each pan preferably consists of an open rectangular framework having parallel side bars 20, to which are secured the pendent scraper-blades 18, and by reason of said scraper-blades projecting from the under side of the frame carrying the same the said blades have a play within the space between the fixed upstanding dam-plates. The reciprocating frame 19 within each feeding-pan has an operating-rod connection 21 therewith. This operating-rod extends through the manhead 11 and may have connected therewith exterior to the boiler a suitable lever, whereby the cleaning-frame may be reciprocated wherever it is desired to loosen up the sediment for the purpose of blowing the same out through the blow-out pipe 13.

In the operation of the boiler and the attachment therein the fixed dams 17 cause the feed-water to be spread thereover in thin sheets, thus allowing the full action of the head of steam upon the feed-water, and all solid matter is caused to be deposited in the pockets between the dams, the different kinds of solid matter being separated sufficiently to make the deposits in the pans soft and obviating the caking thereof. By opening the valve in the blow-out pipe 13 and reciprocating the cleaning-frames to loosen up and put in circulation the mud and other sediment the latter will be entirely cleaned out of the pans and blown off under the steam-pressure through the pipe 13.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described boiler feeding and cleaning attachment will be readily understood by those skilled in the art without further description, and it will also be understood that various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. A boiler attachment of the class described, comprising a pair of upper and lower feeding-pans in communication with each other and inclined in opposite directions, the upper pan being provided with an inlet-valve casing having an upwardly-opening check-valve, and the lower of said pans being provided at its lower end with a blow-out hole and above the plane of said hole with an overflow-opening, a feed-water-pipe connection with the said inlet-valve casing, and a blow-out-pipe connection with said blow-out hole.

2. A boiler attachment of the class described, having a feeding-pan for the feed-water provided with a succession of upstanding fixed dam-plates projecting from the bottom thereof, and a cleaning device having pendent members working in the spaces between said dams.

3. In a boiler attachment of the class described, a pan for the feed-water provided at the bottom thereof with a series of spaced upstanding short flat dam-plates, a reciprocating frame arranged within the frame and having a series of depending flat blades working within the intervals between the dam projections, and exterior operating means for said frame.

4. In a boiler attachment of the class described, the combination of the boiler having in one end a manhole fitted with a detachable manhead, a pair of oppositely-inclined communicating feeding-pans supported within the steam-space in line with said manhole, a feed-water pipe extended through the manhead and connected with the upper pan, a blow-out pipe also extending through the same manhead and connected with the lower pan, and reciprocatory cleaning devices arranged within both pans and having exterior operating-stems also extending through the said manhead.

In testimony whereof I affix my signature in presence of two witnesses.

CHRISTIAN REISER.

Witnesses:
S. ARTHUR KNAPP,
J. S. GASSETT.