

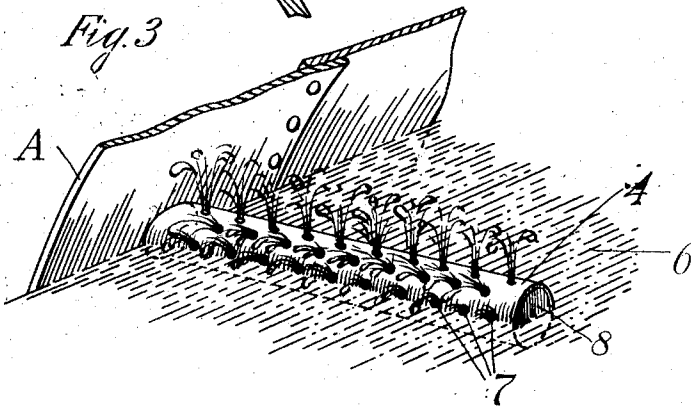
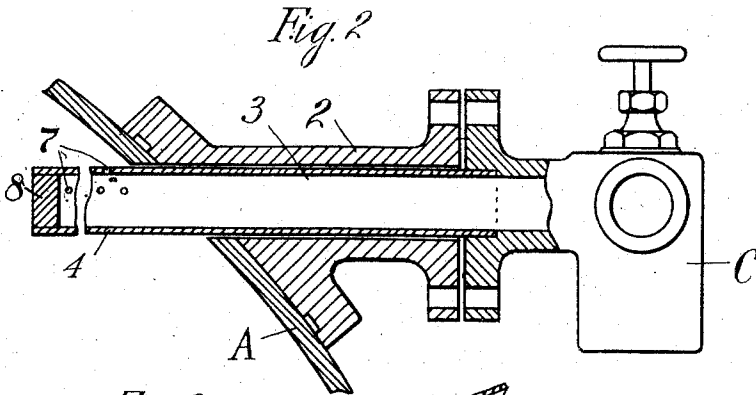
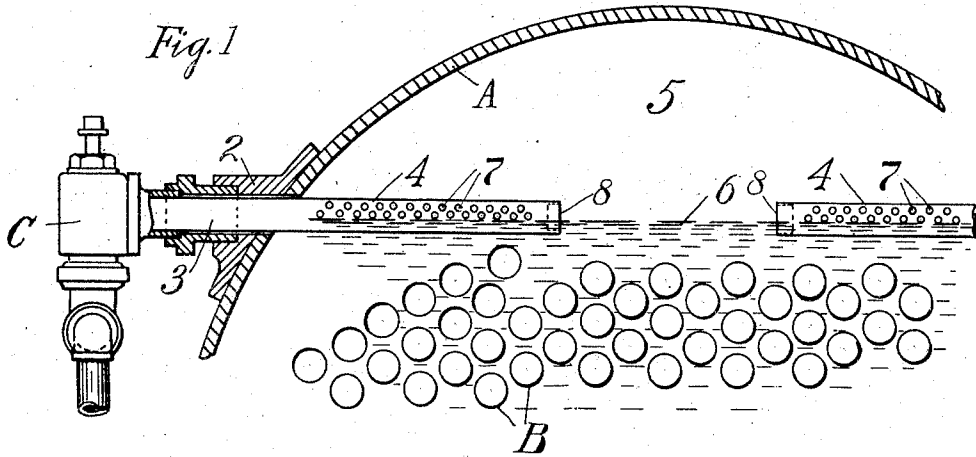
C. W. SEDDON.

MEANS FOR INTRODUCING FEED WATER INTO STEAM BOILERS.

APPLICATION FILED MAR. 6, 1908.

929,716.

Patented Aug. 3, 1909.



Witnesses,
George Voelker
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UNITED STATES PATENT OFFICE.

CHARLES W. SEDDON, OF PROCTOR, MINNESOTA; ASSIGNOR OF ONE-HALF TO JOHN E. CHISHOLM, OF OELWEIN, IOWA.

MEANS FOR INTRODUCING FEED-WATER INTO STEAM-BOILERS.

No. 929,716.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed March 6, 1908. Serial No. 419,449.

To all whom it may concern:

Be it known that I, CHARLES W. SEDDON, a citizen of the United States, residing at Proctor, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Means for Introducing Feed-Water into Steam-Boilers, of which the following is a specification.

My invention relates to improvements in means for introducing feed water into steam boilers, particularly those boilers known as tubular or flue boilers, its object being to introduce the feed water into the boiler in such way as to avoid sudden, local or material change in the temperature of the water already in the boiler or of the flues.

When feed water is injected into a tubular boiler at the bottom, or at the sides of the flues, or in fact at any point below the water line, the feed water, being colder and therefore heavier than the boiler water, will sink to the bottom of the boiler and flow toward the fire-box. The sudden and considerable change in the temperature of the water about the flues will cause the flues to contract and work in the flue sheets and cause leakage at the joints. To overcome these objections I have devised means for discharging the feed water into the steam space of the boiler so that it will become highly heated and partly or wholly vaporized before mingling with the water in the boiler.

More particularly the invention consists in the construction, combination and arrangement of parts hereinafter described and claimed.

In the accompanying drawings forming part of this specification, Figure 1 is a cross section through the upper portion of a horizontal tubular boiler showing the present improvement applied thereto; Fig. 2 is a longitudinal section through a fragment of the feed water pipe and discharge nozzle, with the check valve in elevation, and Fig. 3 is a perspective view of the discharge nozzle and a fragment of the boiler shell.

In the drawings A represents the shell of a horizontal tubular boiler, B the flues and C the check valve secured to the bracket 2 upon the side of the boiler. The check valve has pipe connection with a feed water injector (not shown). Leading from the check valve into the boiler is a pipe 3 having a discharge

nozzle or bulb 4 discharging into the steam space 5 of the boiler. In order that the feed water may be discharged well into the interior of the boiler, the nozzle is preferably carried some distance into the steam space and positioned as low down therein as possible, that is at the normal water line of the boiler water 6. In order that the feed water may be spread or sprayed into the steam space in jets, more or less fine, the bulb or nozzle 4 is closed at the end but formed along its upper side with a number of fine openings or perforations 7, which may be of any shape or size, but are preferably small as shown in the drawings, and of course open into the steam space above the water line. In the form here shown the bulb or nozzle is in the form of a pipe constituting an extension of the feed water pipe 3. It is closed at the end by a closure or plug 8, and is partially immersed in the water. It will be observed, however, that none of the perforations are in the underside of the pipe or below the water line.

In the drawings are shown two bulbs or nozzles arranged upon opposite sides of the boiler, but, while I prefer this arrangement, I do not wish to limit myself to the number or position of the bulbs except of course that they must discharge into the steam space of the boiler.

Thus by the use of the construction described the feed water will be discharged, and preferably sprayed, into the interior of the steam space, where it will mingle with the heated steam and become highly heated and wholly or partly vaporized before it mingles with the water in the boiler. Thus the feed water will be introduced into the boiler without cooling the boiler water suddenly, or locally, if at all, thereby avoiding the sudden contraction of the flues due to the introduction of the colder feed water into the heated water in the boiler.

I claim as my invention:

In a steam boiler, the combination with the shell thereof having an opening, and a bracket arranged about said opening, of a check valve, a feed-water pipe carried by said check valve and supported thereby within the bracket, whereby to be removed bodily with said valve when the latter is removed from said bracket, said feed-water

pipe projecting into the steam space of the boiler and having its inner end closed, the upper portion only of the feed-water pipe being perforated to spray the feed-water in
5 an upward direction into the steam space, and means for connecting the check valve to said bracket.

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

CHARLES W. SEDDON.

Witnesses:

ARTHUR P. LOTHROP,
HATTIE SMITH.