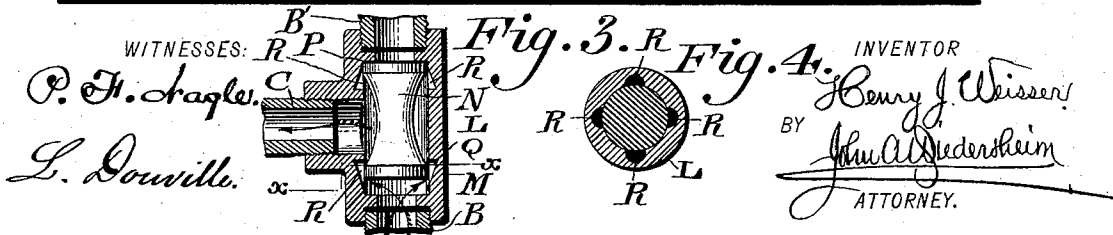
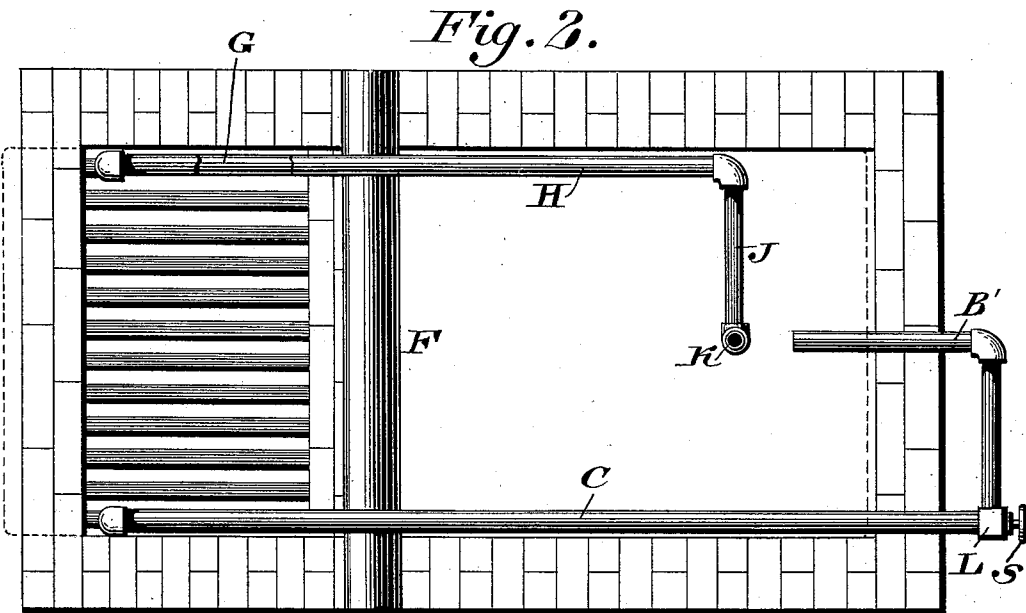
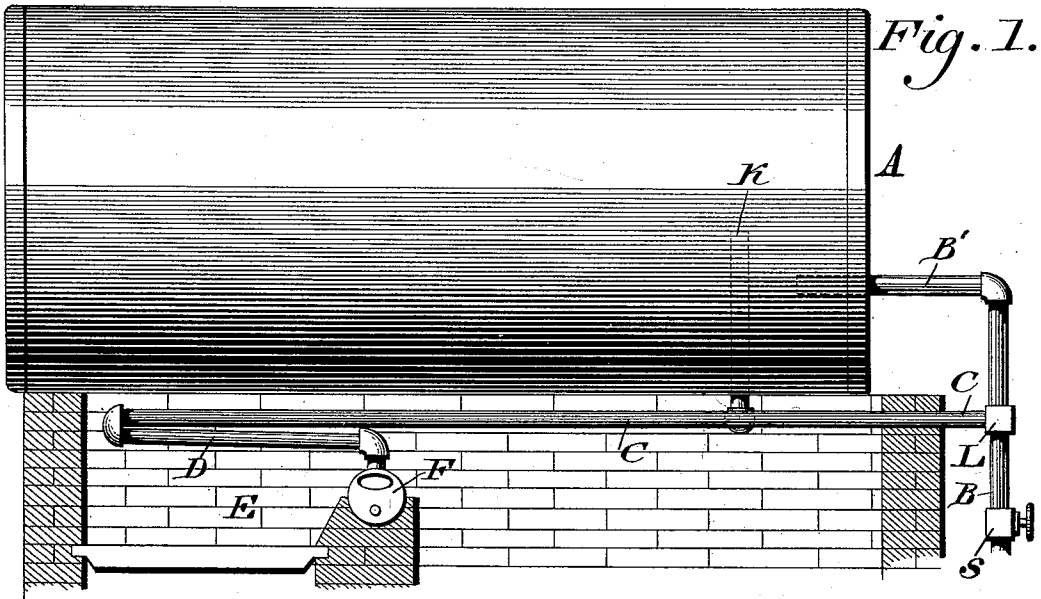


(No Model.)

H. J. WEISSER.
BOILER FEED.

No. 522,393.

Patented July 3, 1894.



UNITED STATES PATENT OFFICE.

HENRY J. WEISSER, OF POTTSTOWN, PENNSYLVANIA.

BOILER-FEED.

SPECIFICATION forming part of Letters Patent No. 522,393, dated July 3, 1894.

Application filed September 1, 1893. Serial No. 484,564. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. WEISSER, a citizen of the United States, residing at Pottstown, in the county of Montgomery, State of Pennsylvania, have invented a new and useful Improvement in Boiler-Feeds, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of novel means for heating the feed water of a steam boiler or generator, and causing a circulation of the same through the boiler and heating device, as will be hereinafter set forth.

Figure 1 represents a side elevation of a boiler feed embodying my invention. Fig. 2 represents a top or plan view thereof. Fig. 3 represents a longitudinal section of one of the valves thereof. Fig. 4 represents a section on line *x, x*, Fig. 3.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings: A designates a boiler feed of any desired construction and B designates the water supply or feed pipe thereof. Connected with said pipe B is a pipe C, which extends under the boiler, and has connected with it the return pipe or bend D, which is within the furnace E, and is connected with one end of the drum F, the latter forming the bridge wall of the furnace. Connected with the other end of the drum is a pipe G, which is also located within the furnace, similar to the return pipe D, it being illustrated below the broken-away part in Fig. 2, and connected with the pipe H, which extends under the boiler and is connected with the branch J, which leads into the boiler as at K.

At the junction of the pipes B and C is an automatically-operating valve L, the same consisting of a shell M having within the same the head or valve N, and seats P and Q at opposite ends, so that said valve L may be closed on the seat P, and opened on the seat Q, or vice-versa, it being noticed that the pipes B and C are coupled to the shell M, and communicate with the interior thereof. Leading from the shell of the valve L, and opening into the boiler is a branch pipe B'.

The walls of the seats P and Q are formed with grooves R, which constitute channels which permit the passage of water or steam, as the case may be, around said valve N.

The pipe B is provided with a valve S for regulating the flow of water to the feed pipe B.

The operation is as follows: The valve S is opened, and water flows into the pipe B, and pressing against the valve N closes the same against the seat P, whereby said valve is open on the seat Q. The water now flows through the valve and enters the pipe C, it being noticed that steam is cut off from the pipe C, owing to the closed valve N, as shown in Fig. 3. The water then flows through the pipe C and the pipe D, and crosses through the drum F into the pipe G, and flows through the pipes H, J, and so enters the boiler in highly heated condition, as the pipes D and G, certain portions of the pipes C and H, and the drum F are subjected to the direct products of combustion in the furnace E, and the remainder of the pipes C and H are subjected to the products of combustion under the boiler behind said drum, the latter acting as the bridge wall of the furnace, the effect of which is evident. When the boiler is supplied, the valve S is closed, and the flow of water ceases, and the valve L having the water pressure removed therefrom is now subjected to pressure from the boiler through the pipe B'. This causes the valve N to open on the seat P, and close on the seat Q, whereby the pipe C is in communication with the boiler through the pipe B', and the water may now circulate through the boiler and the several heating pipes, thus effectively producing steam in large volumes.

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

1. A boiler feed consisting of a feed pipe, a heating pipe leading from said feed pipe to a boiler, a steam pipe and a shell connecting said feed, heating and steam pipes, and having an automatic valve adapted to either open or close the communication between the feed and heating pipes, and close or open

the communication between the steam and heating pipes, said parts being combined substantially as described.

2. A boiler feed having a feed pipe, a heating pipe in communication therewith and leading into a boiler, a steam pipe communicating with said heating pipe and an automatic valve controlling the communications between said feed, heating and steam pipes, said parts being combined substantially as described.

3. In a boiler feed, the shell M having seats at its opposite ends with channels in their walls, the pipes B and B' connected with the ends of said shell, the pipe C connected with said shell intermediate of said pipes B and B', and the valve head N in said shell adapted to automatically open or close the communication between pipes B and C, or B' and C, substantially as described.

4. A boiler feed and heater therefor consisting of the feed pipe B, the heating pipes C, D, the communicating heating pipes G and H, the heating drum and bridge wall F connecting said pipes D and G, and an automatically-acting valve intermediate of the pipes B and C, adapted to open said feed pipe and then close the same, causing a circulation of

water through the boiler and heating pipes, said parts being combined substantially as described.

5. A boiler feed and heater therefor, consisting of a feed pipe with the valve S therein, a heating pipe in communication with said feed pipe, a drum forming the bridge wall of a furnace, a pipe leading from said drum into the boiler, a shell with valve seats in each end, and a valve head in said shell, a section of said feed pipe being between said shell and boiler, and said valve-head controlling the communication between section of feed pipe and the heating pipe, said parts being combined substantially as described.

6. A boiler feed having a feed pipe, a heating pipe, and a shell with an automatic valve therein, a section of said feed pipe being intermediate of said shell and boiler, and said valve controlling the communication between said section and the heating pipe, and also the communication between the main body of the feed pipe and the heating pipe, said parts being combined substantially as described.

HENRY J. WEISSER.

Witnesses:

JEROME FOSTER,

GEORGE H. MAURER.