B. F. FITCH.

Water-Feeding Device for Boilers.

No. 210,513. Patented Dec. 3, 1878.

Fig. 1.

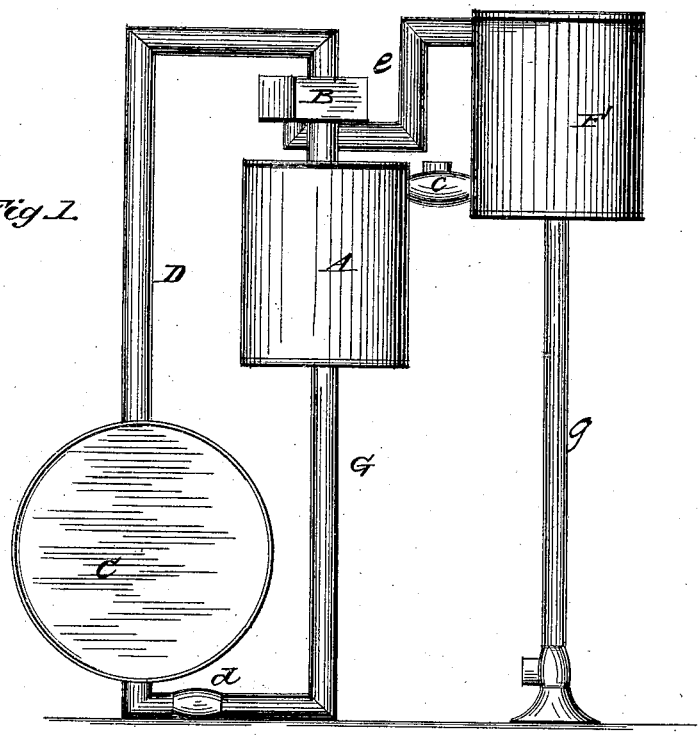
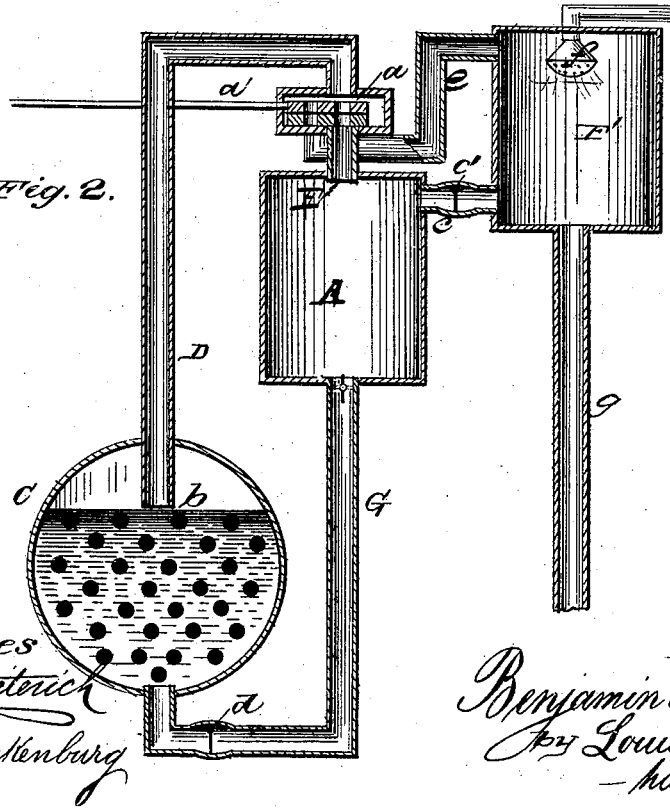


Fig. 2.



Witnesses

Fred. G. Dieterich

George. Bintenburg

Inventor

Benjamin F. Fitch

by Louis Bagger & Co.

his attorneys

UNITED STATES PATENT OFFICE.

BENJAMIN F. FITCH, OF LA CROSSE, WISCONSIN.

IMPROVEMENT IN WATER-FEEDING DEVICES FOR BOILERS.

Specification forming part of Letters Patent No. **210,513**, dated December 3, 1878; application filed October 14, 1878.

To all whom it may concern:

Be it known that I, BENJAMIN F. FITCH, of La Crosse, in the county of La Crosse and State of Wisconsin, have invented certain new and useful Improvements in Water-Feeding Devices for Boilers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side elevation of my improved boiler water-feeding device. Fig. 2 is a vertical section of the same.

Corresponding parts in the two figures are denoted by like letters.

This invention relates to certain improvements in water-feeding devices for steam-boilers, by which, in addition to automatically feeding the boiler, the tank, directly from which the boiler is fed, is likewise fed; and it consists in the employment, in connection with the boiler-feeding tank or reservoir, of a supplemental reservoir or tank automatically feeding the boiler-tank, the said supplemental reservoir connecting with the steam-pipe leading from the boiler to the main water reservoir or tank, and directly with the latter-named tank or reservoir, substantially as hereinafter more fully set forth.

In the drawings, A is the water tank or chamber, which is provided with the steam-chest B, provided with the usual slide-valve *a*, having the stem *a'*, operated by hand or otherwise.

C is the boiler, communication between which and the steam-chest B is had through a pipe, D, reaching down into the boiler to the water-line *b*. The chest B is connected to the tank A by a pipe, E.

F′ is a supplemental reservoir or tank for feeding the tank A, which tank F′ is connected by a pipe, *e*, to the steam-pipe D, or rather to its chest B, in a line with one of the ports of the valve *a*, as seen particularly in Fig. 2. The tank or reservoir F′ is also connected directly to the tank A by a pipe, *c*, having a valve, *c'*. Depending within the tank F′ is an injector, *f*, attached to a cold-water pipe leading from a tank or receptacle. The tank F′ is supplied with water through a pipe, *g*, connecting with a water-main or other water-supplying medium.

G is a third pipe, extending from the bottom of the tank A, bent at right angles or horizontally to its vertical portion, where it is provided with a check-valve, *d*, and extended up into the boiler C.

The operation of filling is as follows: The water in the boiler sinking below the water-line *b*, steam will instantly rush into the pipe D, and up through the same into the steam-chest. Its valve *a* being opened, the steam will rush into the pipe E, from whence it will enter the water-tank, and by pressure force the water from the tank into the pipe G, through which it will enter the boiler, and again cause the water in the boiler to rise to the water-line, or slightly above the lower end of the pipe D, when, the feeding of the water having been sufficient, it will instantly cease, an equilibrium of pressure having been produced. This operation will repeat itself every time the water sinks below the water-line.

Simultaneous with the passing of steam into the tank A, it will also be seen that steam will pass through the pipe *e* into the reservoir or tank F′, which steam will be condensed by the injecting of cold water through the injector *f* and create a vacuum, which will feed the water up through the pipe *g* into the tank F′, ready to be supplied to the tank A through the valved pipe *c*.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

A boiler water-feeding device consisting of the pipe D, a steam-chest, B, and its slide-valve *a*, pipe E, tank A, supplemental tank or reservoir F′, pipes *e*, *c*, and G, all constructed and arranged substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

BENJAMIN F. FITCH.

Witnesses:

CHARLES W. BUNN,

CHARLES E. ALTER.