V. D. ANDERSON.

Boiler-Feeder.

No. 168,077. Patented Sept. 28, 1875.

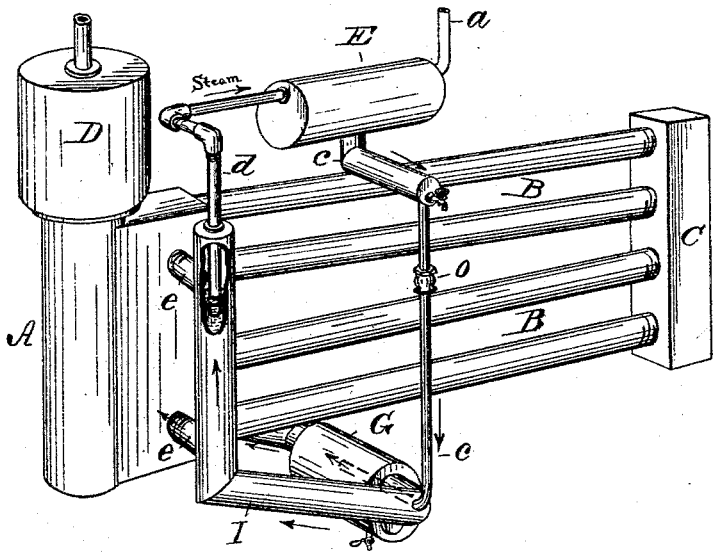
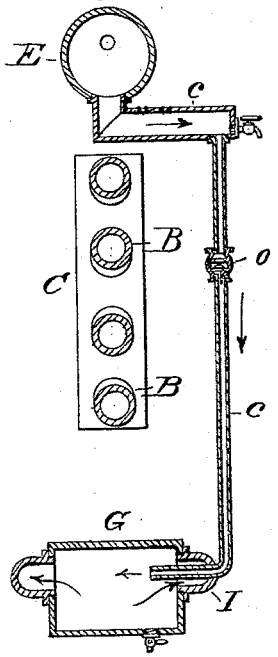


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

VALERIUS D. ANDERSON, OF SPRINGFIELD, OHIO.

IMPROVEMENT IN BOILER-FEEDERS.

Specification forming part of Letters Patent No. **168,077**, dated September 28, 1875; application filed September 4, 1875.

To all whom it may concern:

Be it known that I, V. D. ANDERSON, of Springfield, in the county of Clarke and State of Ohio, have invented certain Improvements in Boiler-Feeders, of which the following is a specification:

My invention consists in an automatic boiler-feeder, constructed as hereinafter described.

Figure 1 is a perspective view of a tubular boiler with the feeder attached. Fig. 2 is a transverse vertical section of the same.

The object of this invention is to produce a simple and cheap boiler-feeder that will operate automatically, and that can be easily applied to boilers of various kinds.

In the drawings, the boiler is shown composed of two cast-iron heads or manifolds, connected by a series of tubes, B, with a steam-drum, D, at the front end. Above the boiler I locate a water drum or tank, E, into which the water is fed by a pump, or by gravity from a supply-tank located sufficiently high to have the water-pressure overcome the steam-pressure, this latter plan being preferred where it is available. From the tank E I lead the water by a pipe, *c*, which extends laterally outside of the brick-work or boiler-case, and from thence down to the mud-drum G underneath, this pipe *c* entering the end of the mud-drum through a larger pipe, I, near the upper side of the drum, as shown in Figs. 1 and 2, the pipe *c* extending some distance within the drum, as shown in Fig. 2. From the mud-drum G, at each end, I extend a pipe, I, upward alongside of the boiler, to which it is connected by two horizontal pipes, *e*, as shown in Fig. 1, the upper one of these pipes *e* being located at or near the water-line in the boiler. I then connect the upright end of pipe I with the water-tank by a pipe, *d*, as shown in Fig. 1, the lower end of the pipe *d* extending down within the pipe I to the water-line, with its end left open, as shown in Fig. 1, or it may enter the side of the stand-pipe I, at the water-line.

When thus arranged, it will be seen, that whenever the water in the boiler falls, or gets low enough to unseal the mouth of the pipe *d*, steam from the boiler will enter, and pass through said pipe into the water-tank. As the steam enters the tank E water will flow therefrom through the pipe *c*, into the drum G, and from thence out through the pipe I, and into the boiler at the lower pipe *e*. As soon as the water rises in the boiler and in pipe I high enough to cover and thus seal the open end of the pipe *d*, the flow of steam through the latter will be cut off or stopped, thereby stopping the flow of water from the tank E.

Thus it will be seen that whenever the water falls below the mouth of the pipe *d* the feeder will at once commence to supply the boiler, and the moment the water closes the mouth of said pipe the feeder will cease to operate, thus rendering it entirely automatic and certain in its operation.

A check-valve, *o*, is located in the water-pipe *c*, to prevent the water from flowing in the wrong direction, though that is not likely to occur.

As shown in the drawings, the water-pipe *c* should enter the mud-drum as near its upper side as possible, and extend to near the center. The stand-pipe I should be considerably larger than the pipe *c*, so as to create very little current in the water as it passes from the mud-drum to the boiler. The tank E should be bricked in with the boiler, or over it.

By this arrangement of the tank, and by the steam which enters it, the water therein is heated to near the boiling-point, thus making the feeder act also as a feed-water heater. This heating of the water tends to separate all foreign matter held in solution, which is at once conveyed with the inflowing water direct to the mud-drum, where it is deposited, it falling to the bottom and remaining there, while the purified water passes quietly on to the boiler.

By this plan, the boiler is kept much clearer of scale and foreign matter than where the water is fed into it in the usual manner.

It is obvious that this style of feeder may be applied to all kinds of steam-boilers.

Having thus described my invention, what I claim is—

The herein described boiler-feeder, consisting of the water-tank E, connected to the mud-drum G by a pipe, *c*, and the stand-pipe I, connected with the mud-drum and the boiler, with the steam-pipe *d*, connecting the tank E with the stand-pipe I at the water-line of the boiler, the whole being arranged to operate substantially as described.

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Witnesses:
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