

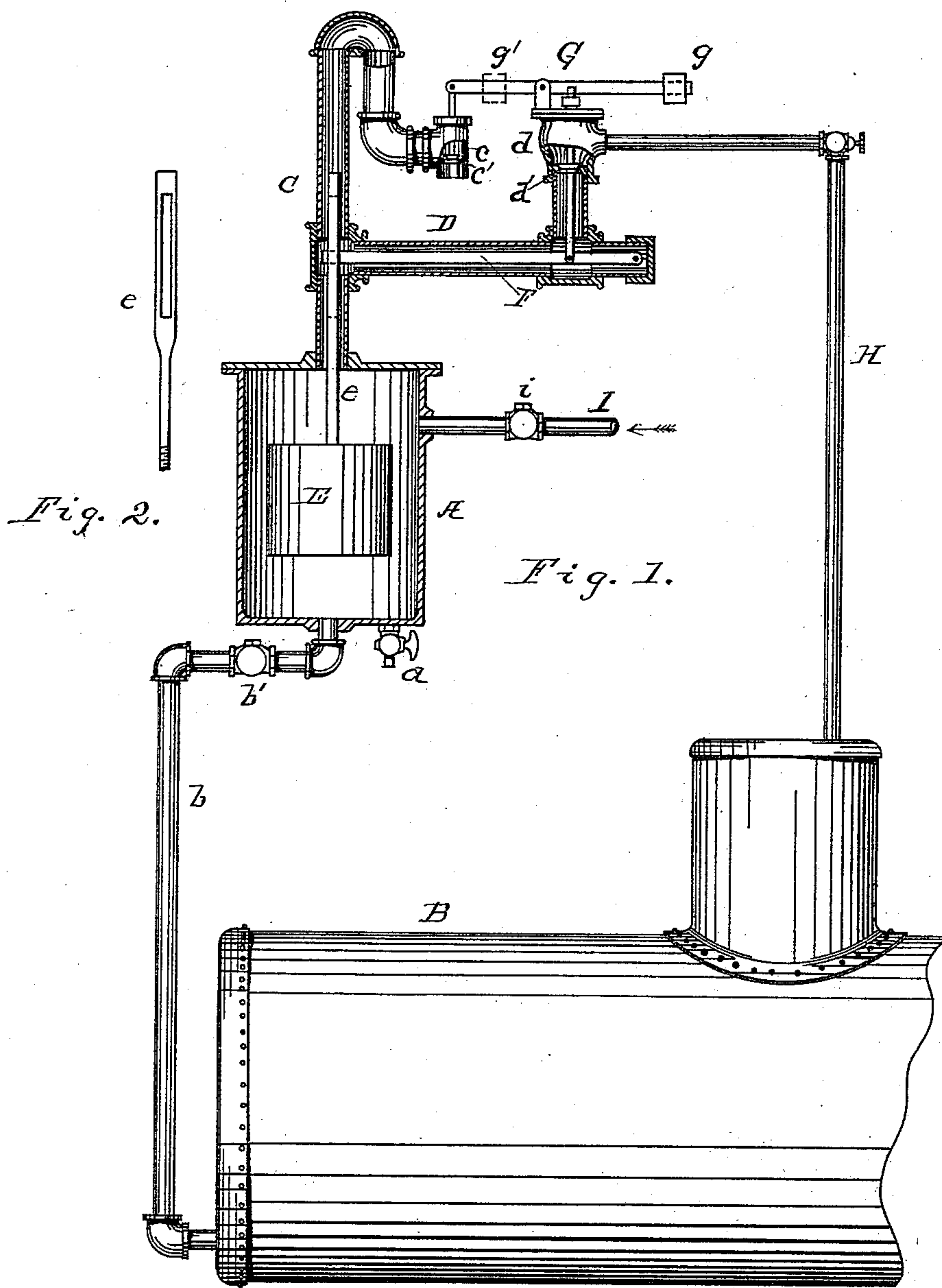
(No Model.)

J. H. KRUSE & L. A. SMITH.

BOILER FEEDER.

No. 379,520.

Patented Mar. 13, 1888.



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# UNITED STATES PATENT OFFICE.

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## BOILER-FEEDER.

SPECIFICATION forming part of Letters Patent No. 379,520, dated March 13, 1888.

Application filed July 6, 1887. Serial No. 243,509. (No model.)

*To all whom it may concern:*

Be it known that we, J. HENRY KRUSE and LEWIS A. SMITH, citizens of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a new and useful Improvement in Boiler-Feeders, of which the following is a specification.

Our invention has relation to improvements in that class of boiler-feeders used in connection with steam-boilers, in which a float inclosed in a hollow chamber rises and falls with the variation of the surface of the water therein and actuates valves which permit said chamber to be alternately filled and emptied.

The object of our invention is to produce a boiler-feeder which shall be simple in construction and adjustable to different degrees of pressure in the chamber.

Our invention consists in the devices illustrated in the accompanying drawings, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a vertical central section of our boiler-feeder with such connected parts as are necessary to an understanding of its operation, and Fig. 2 a front elevation of the float-stem *e*.

In Fig. 1, A is a hollow cylinder connected with the boiler B by a pipe, *b*, having a check-valve, *b'*, and provided with a blow-off cock, *a*, by which sediment may be removed. From the top of the cylinder A projects a case or tube, C, communicating at one side with a hollow arm, D, which supports a valve-chamber, *d*, inclosing a valve, *d'*. The upper end of the case C is returned and terminates in a valve-chamber, *c*, inclosing a valve, *c'*.

In the cylinder A is a float, E, from the top of which a slotted stem, *e*, projects into the case C. In the arm D, and pivoted near its outer end, is a lever, F, the inner end of which rests in the slot of the stem *e*, and upon this lever rests the lower end of the stem of the valve *d'*. The upper end of the stem of the valve *d'* engages one end of a lever, G, pivoted between the valves *d'* and *c'*, its opposite end being connected with the stem of the valve *c'* and arranged to close either as the other is

opened. Upon this lever is an adjustable weight, *g*, by which the machine is regulated for different degrees of pressure in the boiler.

When the pressure is low, the weight *g* is placed along the *d'* valve end of the lever, and when high upon the *c'* valve end, as shown by *g'*.

The valve-chamber *d* is connected with the boiler B by a pipe, H, and the cylinder A is connected with the water-supply by a pipe, I, in which is a check-valve *i*.

The operation of our invention is as follows: Assuming the cylinder A empty, the float E at the bottom, the valve *d'* closed and the valve *c'* open, water enters the cylinder A through the pipe I. As the cylinder A fills, the float E rises until, by means of the stem *e* and other mechanism hereinbefore described, it closes the valve *c'* and simultaneously opens the valve *d'*. This produces equilibrium between the boiler and cylinder A, whereupon the water in the cylinder A passes by gravitation to the boiler. As the water passes out, the float E sinks and closes the valve *d'*, opens the valve *c'*, and the operation is repeated.

We claim as our invention—

1. The combination, with the cylinder A, connected with the water-supply and boiler by pipes I and *b*, and having the case C, valve *c'*, arm D, and valve *d'*, of the float E, stem *e*, and levers F and G, all constructed and arranged substantially as shown, and for the purpose specified.

2. In a boiler-feeder constructed substantially as shown, the combination, with the lever G, arranged to simultaneously operate the valves *c'* *d'* in opposite directions, of the adjustable weight *g*, substantially as shown, and for the purpose specified.

In testimony that we claim the foregoing we have hereunto set our hands.

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