

A. F. W. Neynaber,
Steam-Boiler Indicator.

N^o 65,418.

Patented June 4, 1867.

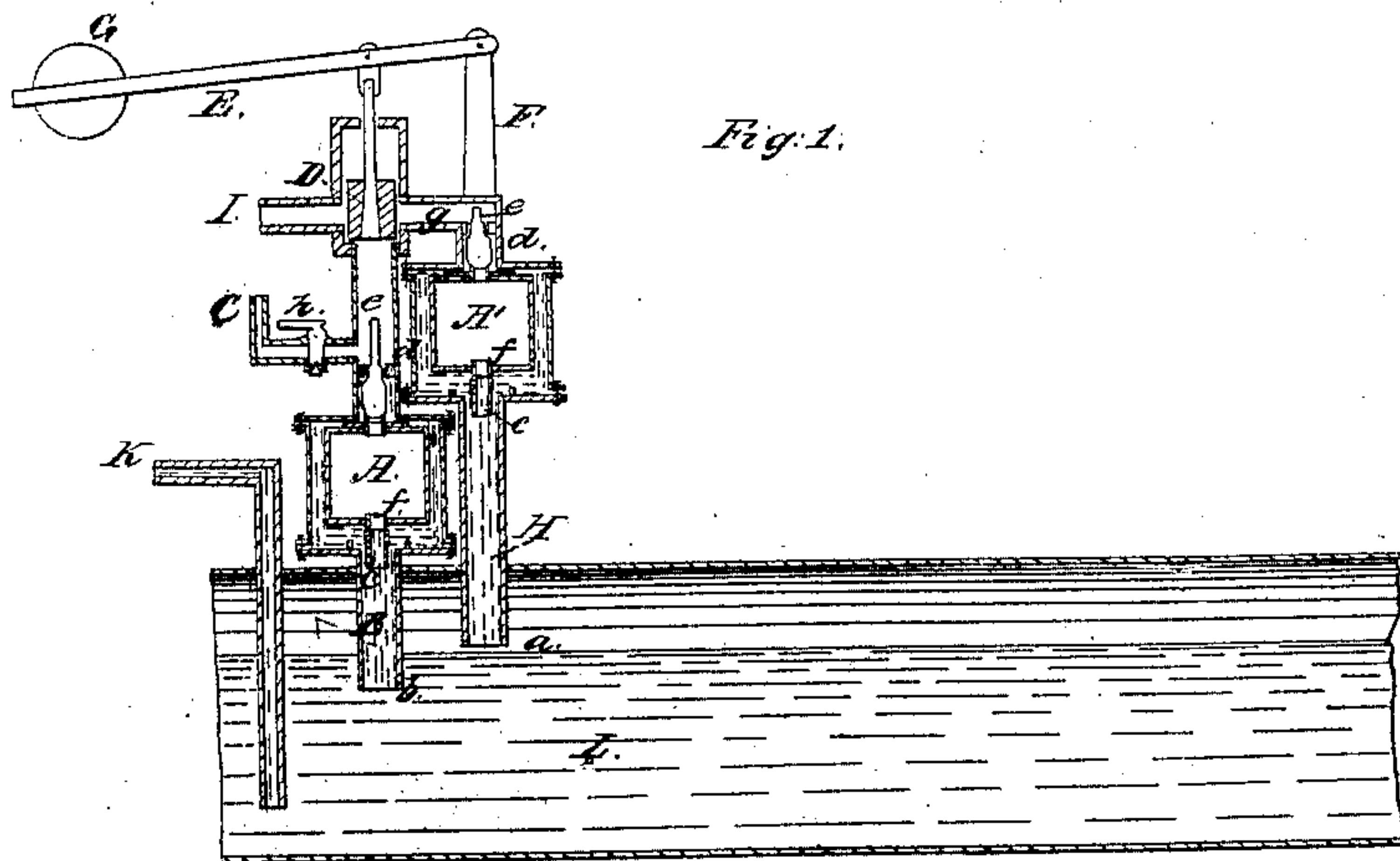


Fig. 1.

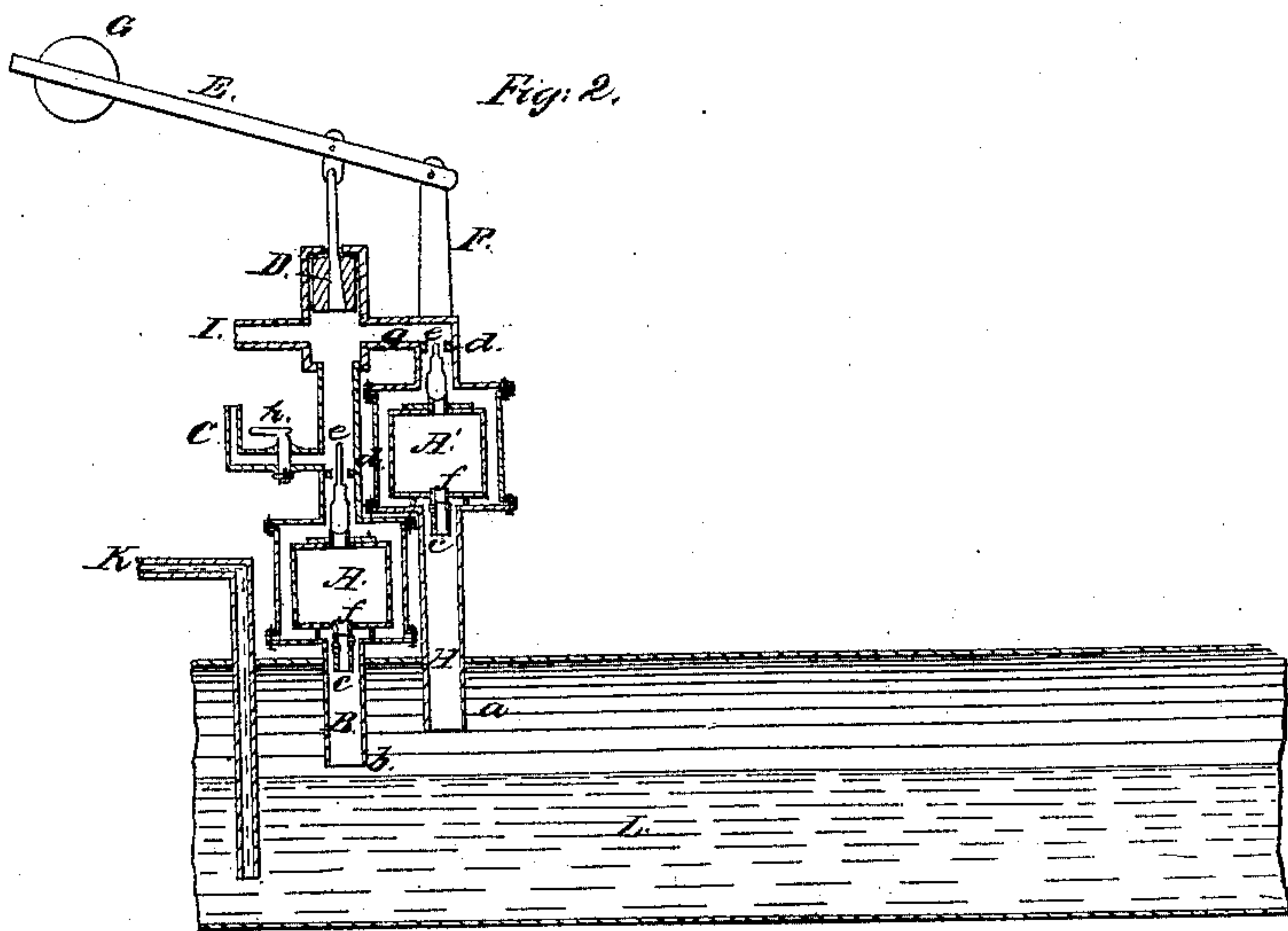


Fig. 2.

Witnesses:

Wm. M. Jackson
R. P. Hunter
A. H. Horman

Inventor:

A. F. W. Neynaber

United States Patent Office.

ADOLPHUS F. W. NEYNABER, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 65,418, dated June 4, 1867.

IMPROVEMENT IN BOILER-FEEDERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ADOLPHUS F. W. NEYNABER, of Philadelphia, in the county of Philadelphia, in the State of Pennsylvania, have invented a new and useful apparatus, the Automatic Boiler-Feeder and Alarm Device, for feeding steam boilers, and giving, if desired, alarm when the water in the boiler evaporates to a given line; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 represents a portion of my apparatus attached to a steam boiler, in vertical section, the boiler being fed with water to a given point.

Figure 2 represents a vertical section thereof in the state when the feeding of the boiler is going on.

The nature of my invention consists in the construction and application of valves by means of which the pressed steam of a boiler is brought to act on a piston or alarm whistle when the water falls by evaporation to a given point, said action of steam being maintained until the water in the boiler rises to a certain point, and is then cut off, and thus a motive power is gained from the moment when the boiler wants feeding until it is sufficiently fed, and no longer, which so gained motive power can be used to perform the work of feeding the boiler automatically.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents a valve, consisting of a float, to which on the lower part is attached the pipe *c*, and on the upper part of which is pivoted the pin *e*, in such a manner that *c* and *e* will play freely within the pipe B. Pipe *c* has an opening at *f* to allow steam and water to pass through. Pin *e* is grooved along the lower part to allow the steam to pass along its sides, except at its front part or point, which point fits steam tight into the opening *d* to prevent the escape of water. A' represents a second valve of the same construction as valve A. C represents a pipe, being a prolongation of pipe B, for the purpose of having a steam whistle attached to it. D represents a piston, which is moved by the steam escaping through the valves A and A'. F is the support of the lever E, with weight G attached. I is a steam pipe, leading steam to a pump-work. K represents a feed pipe for feeding the boiler. L represents a steam boiler.

The operation and use of the apparatus (see fig. 1) are as follows: The boiler L being filled with water to *a*, water extends into pipes B and H, lifts the floats A and A', and these shut up the apertures at their tops. As the water evaporates below line *a*, steam will enter pipe H, and the water therein will descend, but as the opening *g* is closed by the piston D, which is acting there as a slide-valve, no steam can pass through *g* into pipe I until the water falls, by evaporation, below the line *b*, fig. 2; then steam will flow through pipe B. The water therein descends, the float A falls, the steam finds a way through pipe *c*, by means of the opening *f*, around the float, through opening *d*, blows an alarm whistle, (if the stop-cock *h* has been opened,) lifts the piston D, which opens by this movement the aperture of pipe I, and the steam escaping through pipe I sets the pump-work in motion to feed the boiler by means of pipe K. The apparatus is now in position, as shown in fig. 2. As soon as the water rises in the boiler to line *b*, water will enter again pipe B, lift the float A, which will close the aperture at *d*, but the piston D being raised once, will be kept in its position indicated in fig. 2, until the water rises to line *a*, when water will enter also pipe H, will lift the float A', which then will close the upper aperture and cut off the steam. The pump-work will now stop, the steam in pipe I, &c., condenses, the piston D will, by means of weight G, be brought down to the position indicated in fig. 1, and the whole apparatus will again resume the position first described.

Thus it will be seen that by the application of valves A and A', and piston D, in the manner as shown above, a flow of steam is gained in intervals at such moments when the boiler needs feeding, and the so gained flow of steam is maintained until the boiler is fed to a given point; and, furthermore, will be seen that the, in such intervals, gained flow of steam can be used to perform automatically the work of feeding the boiler, by either setting directly a separate pump-work in motion, or for opening a slide-valve or spigot of a hydrant to feed, by means of such hydrant, the boiler, which latter operation can be performed by connecting lever E with a rod, which rod is again connected with a slide-valve, or with the lever of a spigot of a hydrant, or the move-

ment of lever E can be used to start or stop a rotary pump by moving the belt on or off the tight or loose pulley. The single valve A having an alarm whistle attached directly to pipe C, makes a very convenient form for a simple alarm device for a steam boiler, and in such a case it can be screwed on to the boiler in place of the ordinary gauge-cock. Such an alarm device will have the advantage over the gauge-cock of giving automatically the alarm when the water evaporates below a given point; yet this device is as easily put on the boiler as an ordinary gauge-cock, and has the advantage over other devices in use of having the float outside of the boiler, and the valves A and A' are not liable of being hindered to perform their work by friction, as the valves have sufficient space for play. The feeding apparatus is simple in its construction, which makes it durable and reliable.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The construction of the valve A, with reference to the orifice of pipe B, whereby the steam is allowed to flow through pipe B, for the purpose of blowing an alarm whistle attached to pipe C, and raising the piston D, substantially as set forth.
2. The arrangement of valve A', piston D, lever E, support F, weight G, pipes H and I, substantially in the manner and for the purpose as described.

A. F. W. NEYNABER.

Witnesses:

WM. M. DICKSON,
R. P. HUNTER,
A. H. SHOEMAKER.