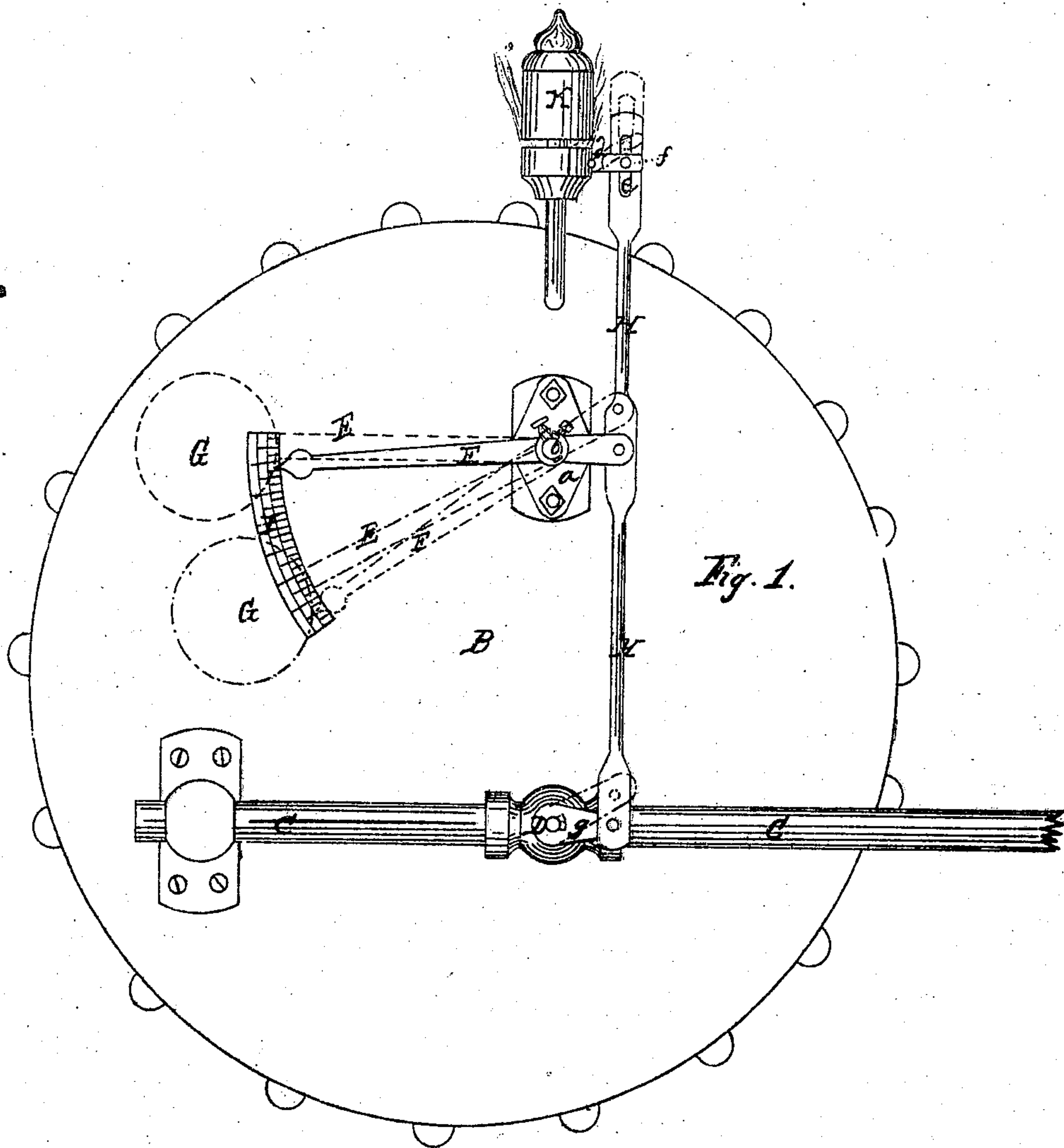


W. M^cCormick.

Boiler-Feed Regulator.

N^o 72413

Patented Dec. 17, 1867.



Witnesses.

W. H. H. H.
W. A. H. H.

Inventor.

Wm M Cormick
By Wiedersheim & Co

W. M^r Cormick.

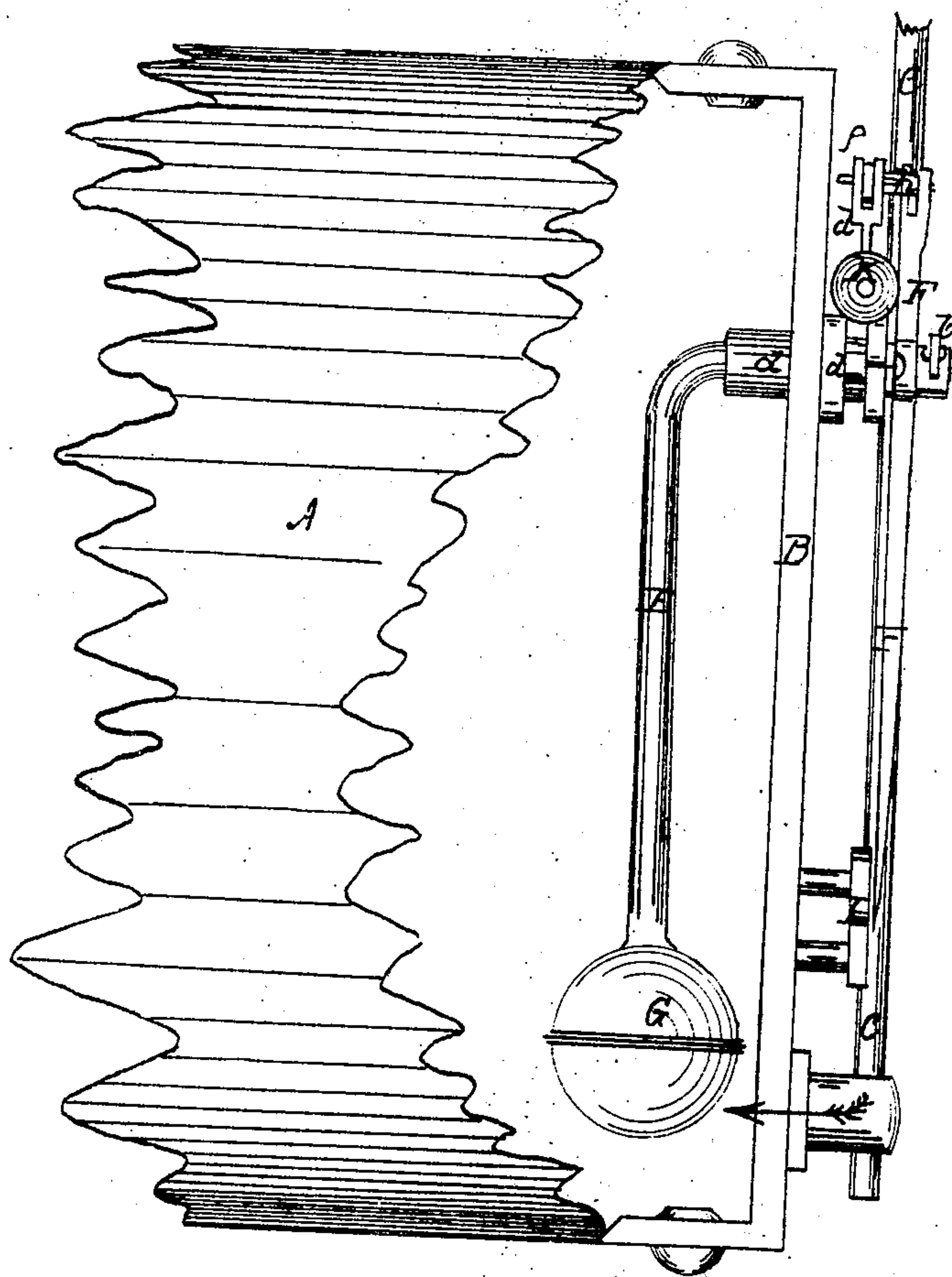
Sheet 2

W. M^r Cormick.

Boiler-Feed Regulator.

Nº 72413

Patented Dec. 17, 1867.



Witnesses

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Inventor:

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United States Patent Office.

WILLIAM McCORMICK, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 72,413, dated December 17, 1867.

IMPROVEMENT IN BOILER-FEED REGULATORS.

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, WILLIAM McCORMICK, of city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Low-Water Detectors and Feed-Regulators; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which it appertains to fully understand and use the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a front elevation of the device applied to a boiler-head, and illustrating my invention.

Figure 2 is a top view thereof.

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

My invention has for its object a low-water detector and feed-regulator for steam-generators, and consists in a device whereby to allow a sufficient quantity of water to enter the boiler. The float will then rise again, and, when to the proper level of the water, will close the feed-cock. Should the proper quantity of water not enter the boiler, either by some defect in the supply or feed-cock, or an insufficient flow of water, the whistle will be sounded, and thereby give timely warning to the engineer or person in charge. An index and graduated arc will indicate the state of the water at all times, the parts for the performance of the above being constructed and applied as will be hereinafter more fully described.

In the drawings, A represents an ordinary steam-generator, and B its head. C is the supply-pipe, and D the cock thereof, whereby the proper quantity of water is admitted into the boiler. At a proper point of the head B an opening is made, in which is placed a bushing, *a*, receiving one end of a curved or bent rod, E, which will protrude outwardly beyond its bushing, and have secured to it an index-arm or pointer, F. The inner end of the curved rod E carries an ordinary float, G, consisting of a hollow ball or chamber of suitable form and material. The rod E may be made hollow, and communicate with the float, and its outer end be provided with a cock, *b*, so that, if any water or steam shall enter the float, and thereby impair its buoyancy, it can readily be withdrawn. K represents the steam-whistle, of ordinary form and construction, and secured to the pipe *c*, communicating with the boiler A. The whistle can be easily sounded by raising the lever *d*, which will open its valve. The outer end of this lever *d* is forked, and receives the upper end of a vertical rod, H, having a vertical slot, *e*. A small pin, *f*, passes through the forked end of the lever *d* and the slot *e*. The lower end of the rod H is connected to the cock D of the feed-pipe C by means of an arm, *g*, secured to the plug of the cock. The pointer F is firmly secured to the rod E by means of a set-screw or otherwise; and one end sweeps over a graduated arc or segment, I, placed on the boiler-head; and its outer end is pivoted to the vertical rod or arm H. The end of the rod E, which is mounted in the bushing *a*, freely vibrates or rotates therein, but has no lateral or longitudinal play, by means of a ball-joint, or otherwise. A shoulder is formed on the rod at the inner end of the bushing, and a collar is placed thereon, between the index and the cross-head or bar which holds the bushing in place, and thereby forms a steam or water-tight joint.

The operation is as follows: When the water in the boiler is at the height or level previously determined upon, the float will be at the top of said water. The cock of the feed-pipe will then be entirely closed, the vertical rod H being at its lowest position, and the index indicating the height or level on the arc I. The ebullition of the water will cause a corresponding vibration of the float, rod, index, and vertical rod, and will scarcely affect the feed-cock, but will not disturb the whistle in the least, owing to the vertical slot *e* allowing free play of the rod H at the forked end of the lever *d* without raising the lever. When the water falls, either from leakage, evaporation, or otherwise, the float will follow, and, by means of the rod E, will raise the pivoted end of the index F, and carry with it the vertical rod H, and thus open at once the supply-cock D, causing the water to rush into the boiler, thereby raise the float, and, when at the proper level, to shut off the cock again, through the medium of the intermediate parts; but, should the water not enter the boiler, or the cock be defective or not in working order, the float will fall still further, and lower the rod H to its extent. The top edge of the vertical slot *e* will strike the pin *f*, and thereby depress the lever *d*, open the whistle-valve, and sound the alarm. During the falling or raising of the float, the free end of the index F will sweep over the arc I, and thereby indicate the exact state of the water. Should it be desired to sound the whistle so soon as the float falls, the vertical slot *e* in the rod H must be dispensed with, and the upper end of the rod be pivoted directly to the lever; consequently the whistle will be opened so soon as the float falls and turns the cock.

The device is simple, practical, and sure in its execution.

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

1. The combination of the rod H with the whistle K, supply-cock D, float G, and index F, substantially as described.
2. The slot *c* of the rod H, in combination with the pin *f*, arm *d* of the whistle K, and arm G of the cock D, substantially as described.

To the above I have signed my name, this fifteenth day of November, 1867.

WILLIAM McCORMICK.

Witnesses:

JOHN A. WIEDERSHEIM,
J. R. MASSEY.