

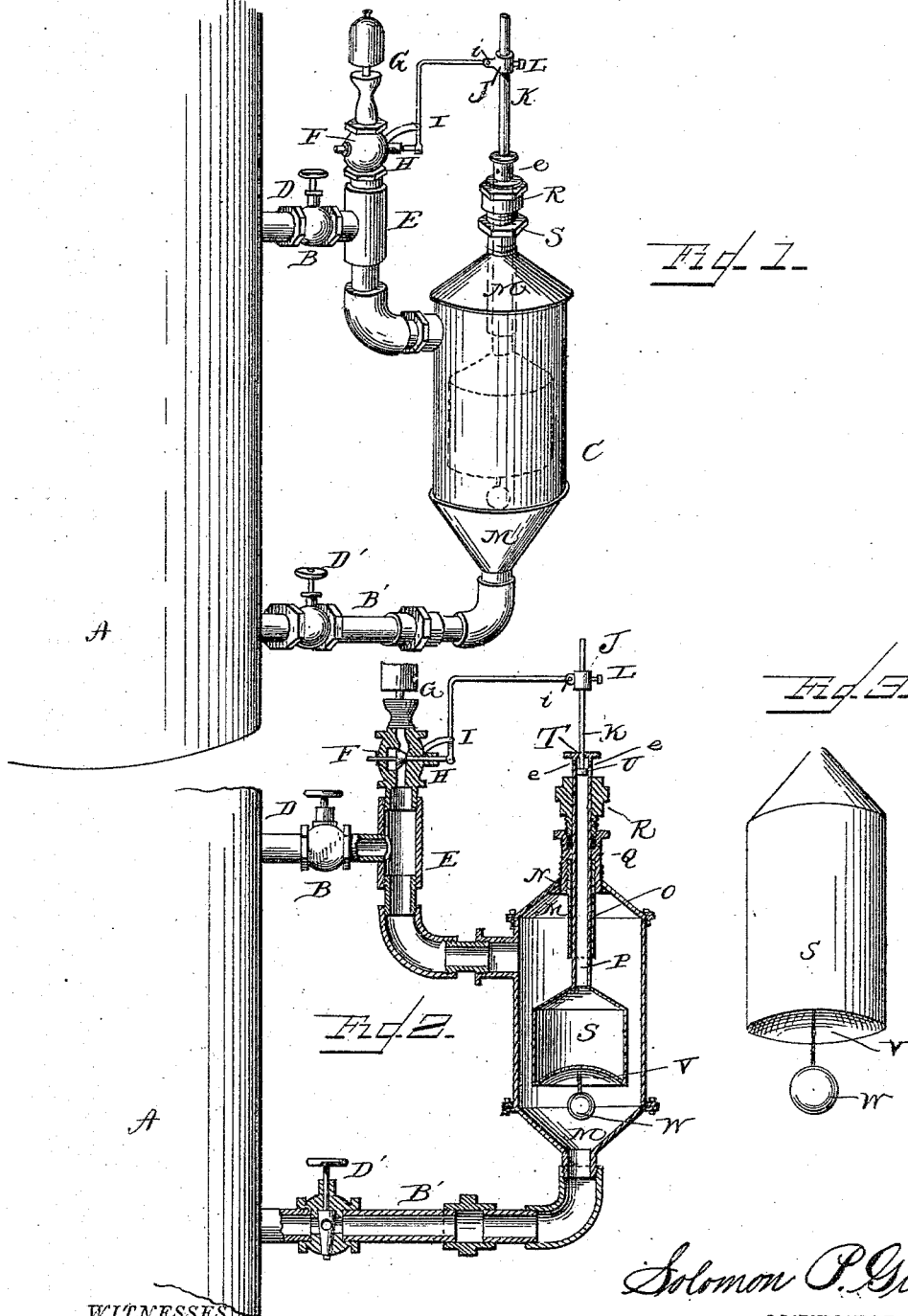
(No Model.)

S. P. GILBERT.

LOW WATER ALARM FOR BOILERS.

No. 302,998.

Patented Aug. 5, 1884.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## LOW-WATER ALARM FOR BOILERS.

SPECIFICATION forming part of Letters Patent No. 302,998, dated August 5, 1884.

Application filed March 23, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, SOLOMON P. GILBERT, a citizen of the United States, residing at St. Clair, in the county of St. Clair and State of Michigan, have invented a new and useful Low-Water Alarm for Boilers, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to alarms for steam-boilers; and it has for its object to provide, simple, convenient, inexpensive, and efficient means whereby when the water in the boiler decreases below a certain point a whistle will sound to give the alarm to the attendant of the boiler, who can act accordingly, and thus prevent all danger of explosion or bursting of the boiler.

With this object in view the said invention consists in certain details of construction and combination of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of my improved alarm attached in position to a boiler. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a detail view of the float.

Like letters refer to corresponding parts in the several figures.

Referring to the drawings, A designates a boiler of any suitable construction, to which the pipes B B' are attached, said pipes extending from the upper and lower portions of the boiler and communicating with a cylinder or well, C, the construction of which will be hereinafter described. Stop-cocks D D' are arranged in the pipes B B', respectively, and are adapted to cut off communication between the boiler and the cylinder or well, as desired.

E is a branch pipe secured to the upper pipe, B, and projecting upward and provided with a valve, F, a whistle, G, being attached at the upper end of the branch pipe, and arranged to be operated by the opening of said valve. The rod H of the valve F is connected to a lever, I, pivoted at i to a sleeve or collar, J, the latter being held at any point upon a rod, K, by means of a set-screw, L.

The cylinder or well C is provided at its ends with detachable conical-shaped heads or caps M, the upper cap being formed with a screw-threaded opening, N, to receive an ex-

ternally-screw-threaded stuffing-box, Q, the upper end of the stuffing-box being likewise externally screw-threaded to receive a cap, R. A tube, O, is externally threaded at its upper end, to screw into internal threads formed in the lower end of the stuffing-box, so as to be held rigidly in position, said tube O extending downward into the cylinder or well.

P designates a pipe secured at its lower end to the hollow metallic float S, and extending upward through the tube O, stuffing-box Q, and cap R, the upper end of the pipe P encircling the rod K, and provided with a cap, T, adapted to engage with an enlarged head, U, of said rod K. The float S is cylindrical in form, as shown, and is made hollow, the bottom V of the float being concave and provided with a depending weight, W. The upper end of the pipe P is provided with a series of openings or holes, e, which permit a free circulation of air through the pipe down into the float, so as to prevent the latter from bursting.

The operation of my invention will be readily understood from the foregoing description, taken in connection with the annexed drawings. The upper pipe, B, allows steam to enter the cylinder or well, and also furnishes the necessary amount of steam to blow the whistle. The lower pipe, B', connects with the lower cap, M, of the cylinder or well, and allows water to enter the cylinder. The float S rests at its concave bottom V upon the water in the cylinder, the weight W hanging from the float, and, in connection with the concave bottom, causing the float to draw heavier on the devices for operating the whistle. When the water in the boiler has fallen below low-water mark, the weight of the float will draw the pipe P downward, the cap T of said pipe engaging with the head U of rod K, and drawing said rod downward, which causes the lever I to operate the valve F of the branch pipe E and the whistle to sound.

By the means above described I am enabled to provide a simple, inexpensive, and efficient alarm for indicating when the water in the boiler reaches low-water mark, so as to enable the boiler being filled in time to prevent explosion.

It will be seen that the concave shape of the

bottom V of the float enables the same to draw heavier on the devices for operating the whistle, so as to insure their ready operation, the hot water in the cylinder or well causing the air in the concave bottom of the float to be expelled and producing a vacuum, which, in connection with the depending weight W, will cause the whistle to be sounded at the proper moment without any unnecessary delay.

10 The tube O, projecting down into the well or cylinder, and through which the pipe P passes, serves as a guide for the latter and steadies the movement of the same, so that said pipe shall have only an up-and-down movement.

15 It will be apparent that various modifications may be made in the foregoing without departing from the spirit or scope of my invention, and that I do not limit myself to the precise details of construction shown and described.

20 Having described my invention, I claim—

1. In an alarm for boilers, the cylinder or well communicating with the boiler, and a hollow float working in the cylinder or well and arranged to be supplied with air, said float being provided with a concave bottom and having a weight depending from the bottom, as and for the purpose set forth.

2. In an alarm for boilers, the combination 30 of the boiler with the cylinder or well communicating with the boiler and arranged to be supplied with water and steam, respectively, a hollow float working in the cylinder and provided with a hollow pipe extending upward, and a rod having a head or cap at its lower end and encircled by the hollow pipe, said rod connecting with the valve for operating the whistle or other alarm, as and for the purpose set forth.

40 3. In an alarm for boilers, the combination,

with the boiler, of the cylinder or well communicating with the same, and a hollow weighted float working in the cylinder or well and provided with a hollow pipe extending upward, the outer end of the pipe being perforated to allow the admission of air to the float, and said pipe connecting with the mechanism for operating the valve, as and for the purpose set forth. 45

4. In a low-water alarm for boilers, the combination, with the boiler, of the cylinder or well, pipes connecting the boiler and cylinder, a whistle, the operating-valve therefor, the lever for opening the valve, a rod to which the lever is attached, and a float working in the cylinder and provided with a pipe extending upward and fitting around the said rod, the parts being arranged and operating for the purpose set forth. 55

5. In a low-water alarm for boilers, the combination, with the boiler, of the cylinder or well, pipes connecting the boiler and cylinder, a whistle, the operating-valve therefor, the lever for opening the valve, a rod to which this lever is attached, a stuffing-box attached to the upper end of the well or cylinder, the float working in the cylinder, the pipe attached to the float and extending up through the stuffing-box and fitting around the said rod, and a tube attached to the stuffing-box and projecting downward into the cylinder or well, so as to steady the working of the pipe, as set forth. 60 65 70

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

SOLOMON PORTER GILBERT.

Witnesses:

J. C. BERRY,

A. A. CARLETON.