

(No Model.)

F. M. ASHLEY.
SAFETY WATER COLUMN.

No. 493,238.

Patented Mar. 14, 1893.

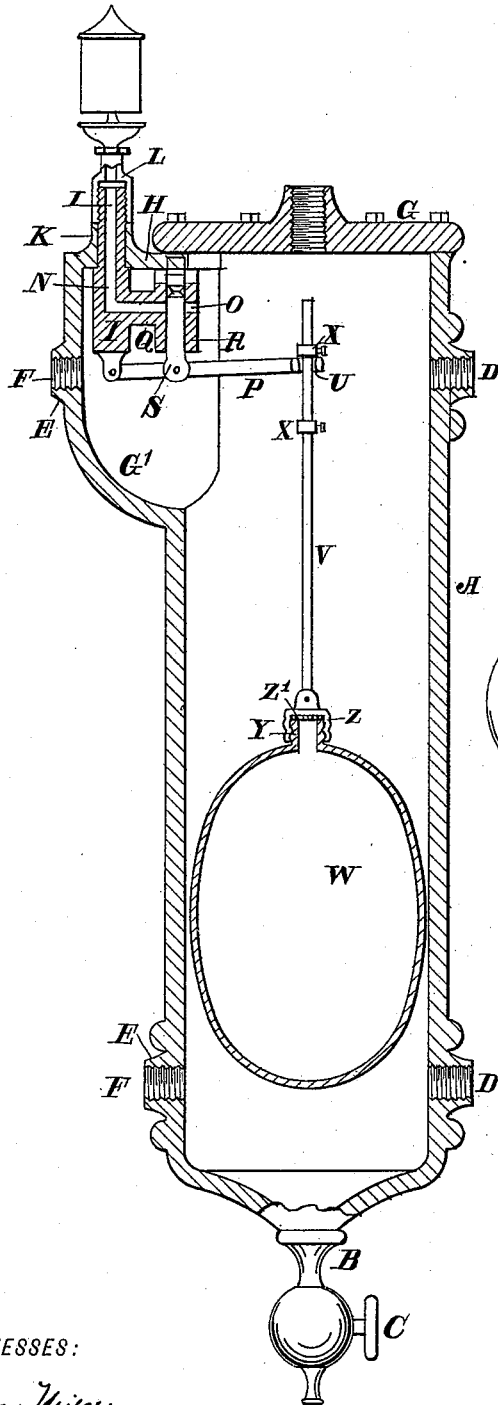


Fig. 1.

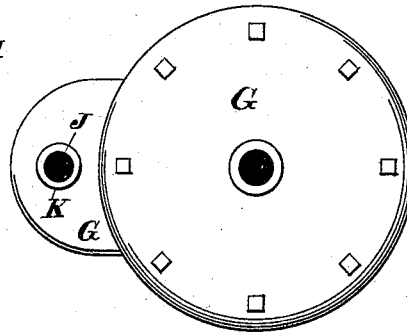


Fig. 2.

WITNESSES:

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SAFETY WATER COLUMN.

SPECIFICATION forming part of Letters Patent No. 493,238, dated March 14, 1893.

Application filed October 17, 1891. Serial No. 409,064. (No model.)

To all whom it may concern:

Be it known that I, FRANK M. ASHLEY, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Safety Water Columns and Alarms, of which the following is a specification.

The object of my invention is to construct a cheap and simple safety water column and alarm, which will be positive in its action, not easily disarranged or disordered, and having therein a valve and connecting mechanism which are not affected by the pressure of steam in the boiler.

In constructing my invention I provide a vertically disposed drum or cylinder, having a tapering lower end, with an outlet all cast in one piece, and a one-way valve, to close this end. The upper end has a head, provided centrally with a boss, and a hole therein, by means of which live steam may be admitted or for attaching a pressure gage thereto. One side of the cylinder has two bosses with holes for attaching the glass gage, while the opposite side has two similar holes whereby connection can be made with the boiler above and below the water line. The upper end of the cylinder has on one side a bulbous extension to which I attach valves and outlet tubes for the steam, and the float and lever connected therewith, on the inner side, while on top of this extension is the whistle for giving the alarm. The float is made of blown glass secured to a proper adjustable stem so that no danger will arise from penetration of the steam or moisture through the wall of the float, as is the case with certain kinds of metal used for this purpose, all of which will now be set forth in detail.

In the drawings, Figure 1 is a central vertical section of my improved safety water column and alarm, and Fig. 2 a top view of same.

In the drawings, A is a shell or cylinder of suitable size having its lower end tapering or contracted, as shown at B, the extremity being provided with a discharge aperture and a one-way valve C located in this discharge aperture. On the front side between the apertures D D is a water gage, and on the rear

side are two bosses E having holes F there through for the boiler connections at the water line. The upper end of this cylinder has a cap G and the rear side of the cylinder has a bulbous extension G', to contain the valve and the valve stem. The top H of this extension is preferably cast with the cylinder A and this top is designed to receive the stem I which passes up through the hole J in the boss K.

The upper end of the stem I is screw threaded to receive the tube L of the steam whistle M, and the stem has a bore N which extends down a suitable distance and connects with a horizontal bore O. To the lower end of this stem is fulcrumed the lever P which supports the float. On the side of the stem I toward the center of the cylinder A, is a horizontal projection Q which projects out a short distance, and terminates in a T-thread R. Through this latter portion R is a vertical bore, which receives a longitudinally movable plug S, the lower end being hinged to the lever P between its fulcrum and the float stem. The horizontal bore O coincides with the vertical bore which receives the plug S, and as the plug S has an annular, V-shaped groove T the body of the plug cuts off the passage of steam unless the float should draw down the inner end of the lever P, which action would draw down the plug S so that the V-shaped groove would be on a line with the bore O, and allow the steam to pass up the tube N, and give the low-water alarm on the whistle.

The inner end of the lever P, has a vertical hole U to receive the stem V of the bulb W. The stem may be either hinged to the bulb as shown, or fixed. The stem has two movable collars X, one above and the other below the lever P, by means of which the movement of the bulb and the throw of the lever may be regulated.

The bulb is made of blown glass having a screw-threaded tubular head Y, integral therewith, and over this head I screw a spun cap Z, to which cap I attach the stem V. Between the cap and the head Y is a gasket Z' of any suitable material, so that when the cap is screwed on the bulb can be made air tight.

The operation is very simple. If the water in the boiler should fall below the desired

point, the weight of the bulb would be sufficient to draw down the inner end of the lever, P, and thus draw down the plug S so that the V-groove would be within the bore

5 O. In the event there was steam in the boiler, it would immediately pass into the bore O and thence to the steam whistle, giving the alarm. The collars X are adjustable,—the upper one being, preferably, so fixed that
10 when the bulb rests on the lower end of the cylinder the V-shaped groove will be in position to allow the steam to enter the bore S, although, if desired, to fix the low water mark at any higher point the upper collar
15 can be lowered.

One feature of great advantage in the construction of this alarm, is the ease with which it can be repaired, as all the operative mechanism is on the under side of the cap, and attached thereto, so that when the cap is removed all the mechanism is taken out with it.
20 Again, the lever, by being fulcrumed close to the plug, enables me to get an easier movement of the plug, than if the plug were directly connected with the bulb. By constructing
25 the bulb of glass, I am able to furnish the apparatus much cheaper than if made of

brass or similar metal, as usually constructed, and as steam or water does not pass through pores of the glass, it is not as liable to get out of order as if constructed of copper or similar metal.

What I claim as new is—

In a safety water column, the combination of a shell or cylinder, a stem sliding in an aperture of the casing of said cylinder, said stem being provided with a steam passage leading to the alarm device, a valve in said steam passage, a lever operating said valve, and a float connected with said lever, all the parts being attached to said stem whereby the same are bodily removable, said stem having a screw-threaded extension projecting outside the shell, with an alarm arranged to be screwed upon said extension and hold the stem in position, substantially as described.

Signed at Brooklyn, in the county of Kings and State of New York, this 22d day of October, A. D. 1890.

FRANK M. ASHLEY.

Witnesses:

J. S. ZERBE,
I. S. ELKINS.