D. McFarland,

Steam-Boiler Indicator.

No. 79,672. Patented July 7, 1868.

Fig. 1.

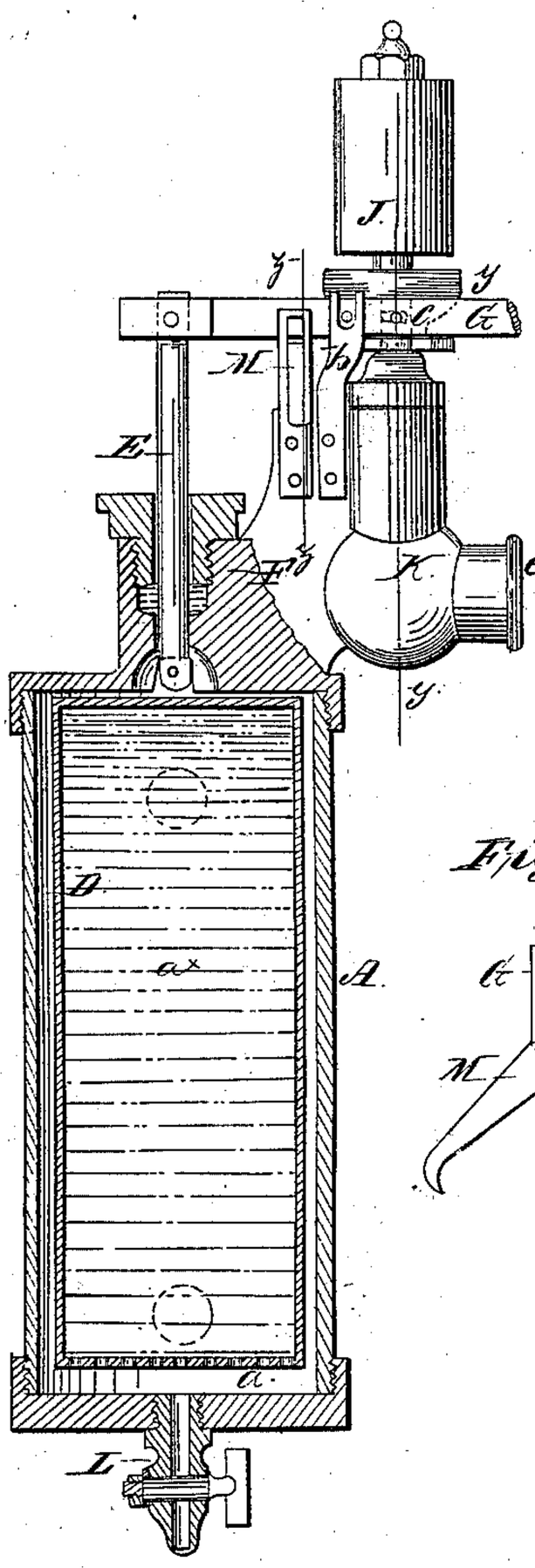

Fig. 2

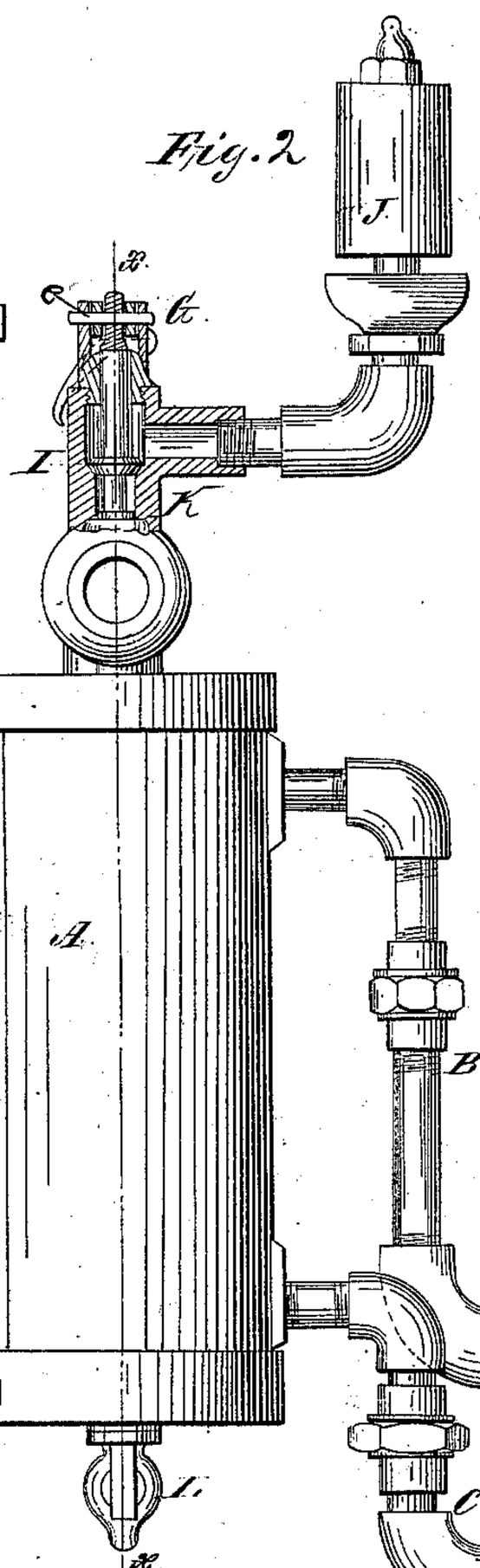

Fig. 3.

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DAVID McFARLAND, OF NEW YORK, N. Y.

Letters Patent No. 79,672, *dated July* 7, 1868.

IMPROVEMENT IN LOW-WATER INDICATOR AND STEAM-PRESSURE ALARM.

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, DAVID McFARLAND, of the city, county, and State of New York, have invented a new and improved Low-Water Indicator and Steam-Pressure Alarm; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings forming part of this specification.

This invention relates to a new and improved device for indicating when the water in a steam-boiler gets below a proper level; and also for giving an alarm when the steam-pressure in a boiler exceeds the required standard.

In the accompanying sheet of drawings—

Figure 1 is a vertical section of my invention, taken in the line *x x*, fig. 2.

Figure 2, a side elevation of the same, partly in section, as indicated by the line *y y*, fig. 1.

Figure 3, a section of a portion of the same, taken in the line *z z*, fig. 1.

Similar letters of reference indicate corresponding parts.

A represents a cylinder, which communicates, by means of two pipes B C, with a steam-boiler, the upper pipe B entering the boiler at the line of the lowest water-level, and communicating with the cylinder A near its upper end.

The pipe C communicates with the lower part of the boiler.

Within the cylinder A there is placed a float, D, which is hollow, provided with a perforated bottom, *a*, and filled with hemp or any suitable fibrous material $a^{\times}$.

To the upper end of this float a rod, E, is attached, which passes up through a stuffing-box, F, on the top of the cylinder, and is pivoted at its upper end to a beam, G, having its fulcrum at *b*, and a movable or adjustable weight, H, on its outer part, (see fig. 1.)

This beam G is connected, as shown at *c*, to the stem *d* of a valve, I, which, when raised, admits steam to an ordinary steam-whistle, J, (see fig. 2.)

To the lower part of the chamber K of valve I, there is attached a pipe at *e*, and this pipe communicates with the steam-boiler at any point above the water-level.

By this arrangement, when the steam-pressure in the boiler exceeds a certain point, the valve I will be raised, and the whistle sounded, the weight H being adjusted on the beam G, so that the alarm cannot be sounded until the pressure in the boiler exceeds the standard required.

The cylinder A will be filled with water, and remain filled so long as the water in the boiler is above the orifice of the pipe B, and consequently both pipes B C submerged, and the buoyancy of the float D will keep the valve I closed.

But, when the water in the boiler descends, so that steam can enter the pipe B, the water in A will immediately fall to a level with that in the boiler, and such a small quantity of water will be left in A that the gravity of the float will raise the valve I, and cause the whistle or alarm to be sounded.

The filling of hemp or other fibrous material in the float D is designed to prevent any space for the reception and expansion of steam therein.

Said material will become saturated with water, and remain so within the float as long as the boiler is in use.

The hollow metallic floats are very unreliable, when used in connection with or applied to low-water detectors and alarms, on account of their leakage of water, and the steam generated within them.

In the bottom of the cylinder A there is a faucet, L, by opening which the cylinder may be cleaned of all impurities, the water from the boiler being forced through it under the pressure of the steam.

M is a lever, under the beam, and, by operating this lever at any time, the beam G may be raised, and the whistle sounded, whenever required for any purpose.

I claim as new, and desire to secure by Letters Patent—

1. The float D, constructed of a hollow cylinder, filled with hemp or other suitable fibrous material, substantially as and for the purpose set forth.

2. The float D, in combination with the weighted lever G, valve I, and pipe *e*, substantially as herein shown and described.

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Witnesses:

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