Maslin & Birdsall,

Steam-Boiler Indicator.

No. 82,967. Patented Oct. 13, 1868.

Fig: 1.

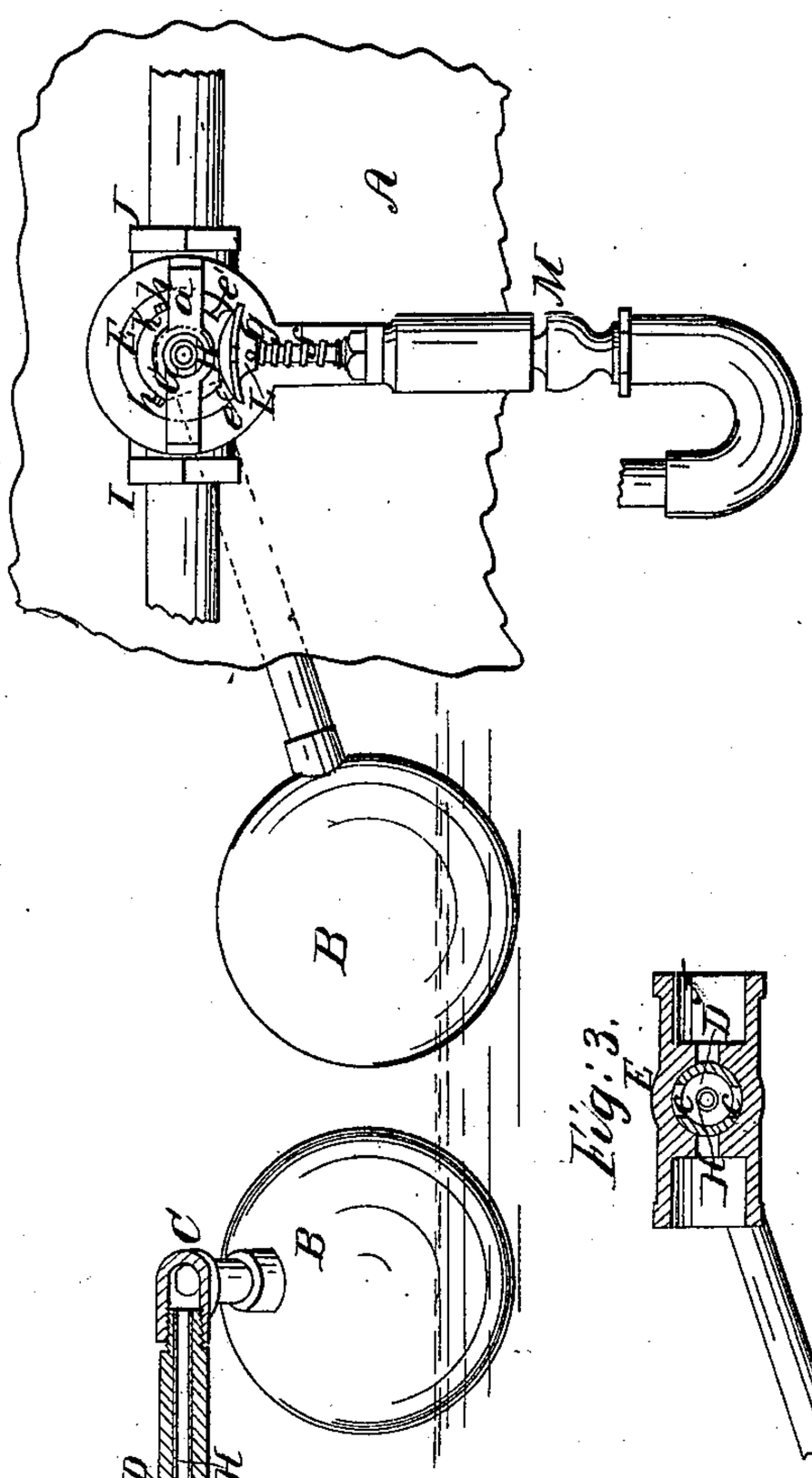

Fig: 2.

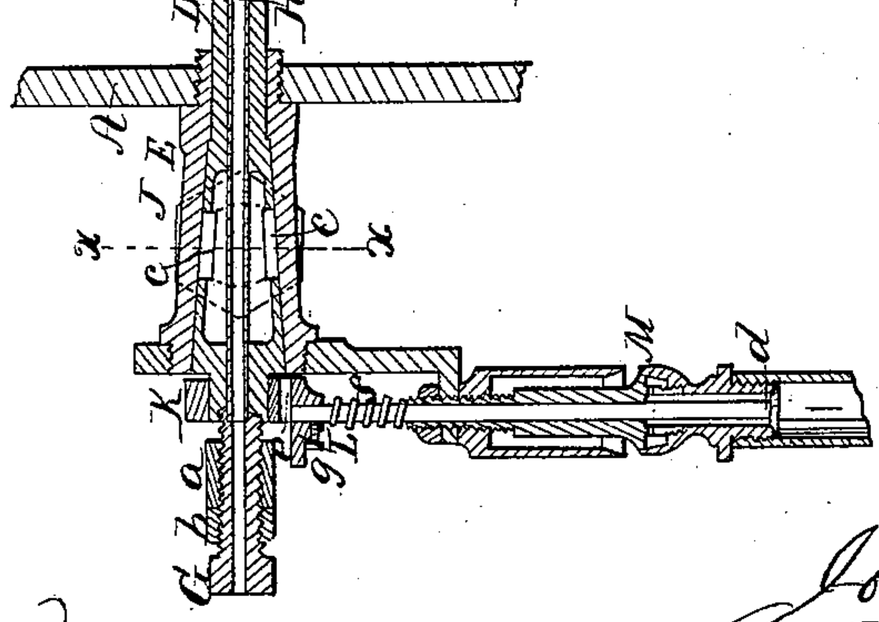

Fig: 3.

Witnesses;
A. Lecture
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United States Patent Office.

JOHN MASLIN AND DAVID BIRDSALL, OF JERSEY CITY, NEW JERSEY.

Letters Patent No. 82,967, *dated October* 13, 1868.

IMPROVEMENT IN WATER-LEVEL DETECTOR FOR BOILERS.

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

To all whom it may concern:

Be it known that we, JOHN MASLIN and DAVID BIRDSALL, both of Jersey City, in the county of Hudson, and State of New Jersey, have invented a new and useful Combined Boiler-Feed Regulator and Water-Level Detector, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 represents a front or side elevation of our improved water-level detector and feed-regulator as applied to a steam-boiler, and is operated by a ventilated float, and

Figure 2 a sectional elevation of the same, at right angles to fig. 1.

Figure 3 is a transverse section through *x x* in fig. 2.

Similar letters of reference indicate corresponding parts.

This, our invention, relates to a combination of means or devices, arranged for the most part outside of the boiler, for operation in conection with or by a float, (preferably of a ventilated character,) situated within the boiler, or said devices and float may be combined with a box or case in connection with the boiler, the same in either case being of such a character, and so disposed or arranged, as to indicate, by a steam-whistle or alarm, with every facility for adjustment, either the too high or too low level of the water in the boiler; also, when the boiler requires a fresh feed or supply of water, to automatically open the connection between the supply-pipe and the pump.

Our invention, in this connection, consists in a combination, with the stem or plug of the device operated by the float, of a cam-disk valve of the whistle, with its stem and spring applied to the latter, whereby the action of the apparatus or device is perfected, and every facility afforded for varying the period of opening the valve to sound the alarm, and otherwise adjusting its action relatively to the float.

Referring to the accompanying drawing, A represents the one head or end of a boiler, and B a hollow float arranged therein, and connected by a tubular stem or rod with a hollow elbow-lever or angular arm, C, screwed on to or made fast, within the boiler, to the operating-stem D of the device or apparatus, arranged to occupy a horizontal position, and at liberty to turn on its axis in the barrel or socket E, which latter is of tapering character or construction, to accommodate a taper swell in or to the stem, that makes of the latter a plug or valve, said tapering barrel or socket being screwed at its smaller end into the head of the boiler, so that steam acting from the inside of the boiler against the stem or plug will have a tendency to relieve or release said plug from "sticking" in the barrel.

On the outer and large end of the barrel E is a bridge, *a*, carrying a set-screw, G, with lock-nut, *b*, for tightening up and holding at its set the plug D, by bearing against the outer end thereof. This stem or plug and set-screw G have an axial aperture in them, through which is closely fitted or inserted a small tube, H, open at its ends, and connecting the hollow set-screw (the aperture in which is virtually an extension of the tube H) with the hollow elbow-lever or arm C, for the purpose of carrying off or allowing to escape vapor formed by leakage of steam or water through the float B. This constitutes a simple and compact means for establishing the ventilated character to the float, being all contained as it were within the device controlling the feed, and indicating the too high or too low level of water within the boiler.

The plug D is cut away, or has a suitable passage, *c*, made in it, which, excepting when the water has fallen below its proper level in the boiler, or thereabouts, remains under cover of the barrel, so as to place the plug in a closed condition, but which, when the plug is turned by the float in falling, as the water gets down to or below its proper level, opens or establishes communication between side branches or tubular connections, I and J, to or from the barrel E, the one of which branches is designed to connect with a water-supply pipe from any suitable source, and the other with the feed-pump to the boiler, so that when the float has fallen, as specified, feed takes place, but stops and remains shut off when sufficient water has been pumped into the boiler. This action taking place frequently, keeps the whole device in perfect working order.

Made fast, in an adjustable manner, on the outer end of the stem or plug D, is a two-horned cam, K, which, as the plug is turned by the action of the float, whether it be from the water in the boiler falling too low, or rising unduly high, serves to depress a horizontal disk, L, connected with a valve, *d*, of a steam-whistle, M, that, on said valve being opened by the depression of the disk L, through either horn, *e e'*, of the cam K, admits steam drawn or supplied by a suitable pipe-connection from the steam-chest of the boiler, or other source out of the reach of the water, to sound the whistle. Where the detector is only required to indicate the too low level of the water in the boiler, then one horn, (*e* or *e'*) will suffice.

In working, or when pressure is on, the steam from the boiler will keep this valve *d* closed, while, prior to getting up steam, a spring, *f*, round the valve-stem accomplishes the same, that is, in both cases, excepting when the horns *e e'* of the cam K operate on the disk L to open the valve.

This disk L is preferably of a convex or other equivalent form on its upper face, to secure a quicker open-

ing movement to the valve of the whistle by the action of either horn *e e'* on said disk L, which latter is adjustable by a set-screw, *g*, up or down the stem of the valve, so as to vary the period of opening the valve *d* by the action of the float to suit circumstances. The adjustment of the cam K on or around the outer end of the stem or plug D by set-screws *h* is for the purpose of adjusting the horns *e e'* in proper relationship to the cam L, to meet variations in the altered conditions of the float.

What is here claimed, and desired to be secured by Letters Patent, is—

The combination, with the stem or plug D, of the cam K, disk L, the valve *d* of the whistle with its stem and the spring *f*, as described.

JOHN MASLIN.
DAVID BIRDSALL.

Witnesses:
A. LE CLERC,
A. KINNIER.