

H. Reynolds.

Low Water Indicator.

N^o 97,228.

Patented Nov. 23, 1869.

Fig. 1

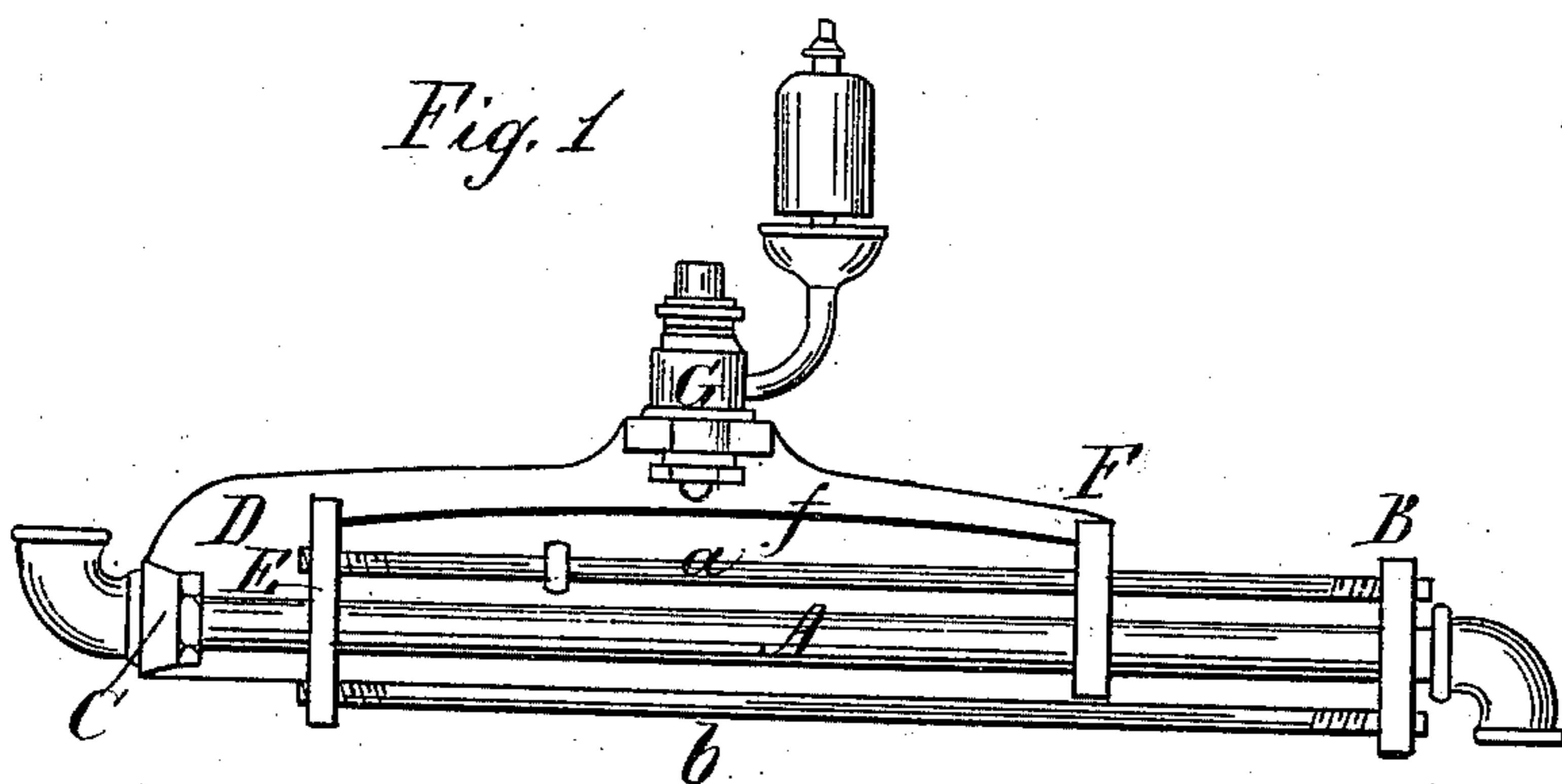


Fig. 2



Witnesses

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HENRY REYNOLDS, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO REYNOLDS & CO., OF SAME PLACE.

Letters Patent No. 97,228, dated November 23, 1869; antedated November 12, 1869.

IMPROVEMENT IN LOW-WATER INDICATOR.

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, HENRY REYNOLDS, of New Haven, in the county of New Haven, and State of Connecticut, have invented a new Improvement in Low-Water Detector; and I do hereby declare the following, when taken in connection with the accompanying drawings, and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a front view illustrating my improvement, and in

Figure 2, the common device upon which my improvement is made.

This invention relates to an improvement in low-water alarm or detector for steam-boilers, such as are arranged to be operated by expansion of the tube into which the hot steam passes at low water, and such as is shown in fig. 2, in which A is the tube, arranged so as to communicate with the boiler at or near the low-water mark, and so that when the boiler is filled above that point, the tube is filled with water, and being exposed, is comparatively at a low temperature, but when the water falls below the line of the tube, the water in the tube flows out into the boiler, being immediately replaced by hot steam, which causes the expansion of the tube.

To the tube a cross-head, B, is firmly fixed. The other end of the tube, at C, is firmly fixed to a plate, D, and over the tube another cross-head, E, is arranged, so as to slide on the tube.

The two cross-heads, B and E, are connected by rods *a* and *b*, and between the cross-head E and fixed block F, on the plate D, a bar, *f*, is arranged.

By this arrangement, the expansion of the tube, increasing its length, draws the cross-head E toward the block F, compressing the bar *f*, which causes it to rise in the centre, over which a whistle-valve, G, is placed, so that the rising of the bar *f* will open the valve and cause the alarm.

Heretofore, in securing the rods *a* and *b* to the cross-heads E, nuts have been placed upon both sides of the cross-head, as seen in fig. 2.

In practical use, it is found that the constant expansion and contraction loosen the nuts, and cause them to yield more or less, so that the instrument is not sufficiently positive for practical use.

To overcome this is the object of my invention, which consists in attaching the two cross-heads together by cutting upon the respective ends of the connecting-rods, a right and left-hand thread, and tapping the cross-head accordingly, so that when the instrument is adjusted, the rods will not move to affect the relative position of the cross-heads.

In order to the clear understanding of my invention, I will fully describe the same as illustrated in the accompanying drawings.

The whole machine is constructed the same as before described, with this exception, that the rods *a* and *b* are, upon one end, cut with a right-hand thread, and upon the opposite end, a left-hand thread, the two cross-heads tapped accordingly, then the two heads attached together, as seen in fig. 1, without the employment of the nuts, so that whatever may be the operation upon the rods, the relative position is not changed.

Having fully described my invention,

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

In a low-water detector, constructed as described, the arrangement of the two cross-heads, B and E, with the rods *a* and *b*, each cut with a right and left-hand thread, and the cross-heads tapped accordingly, as herein specified.

HENRY REYNOLDS.

Witnesses:

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