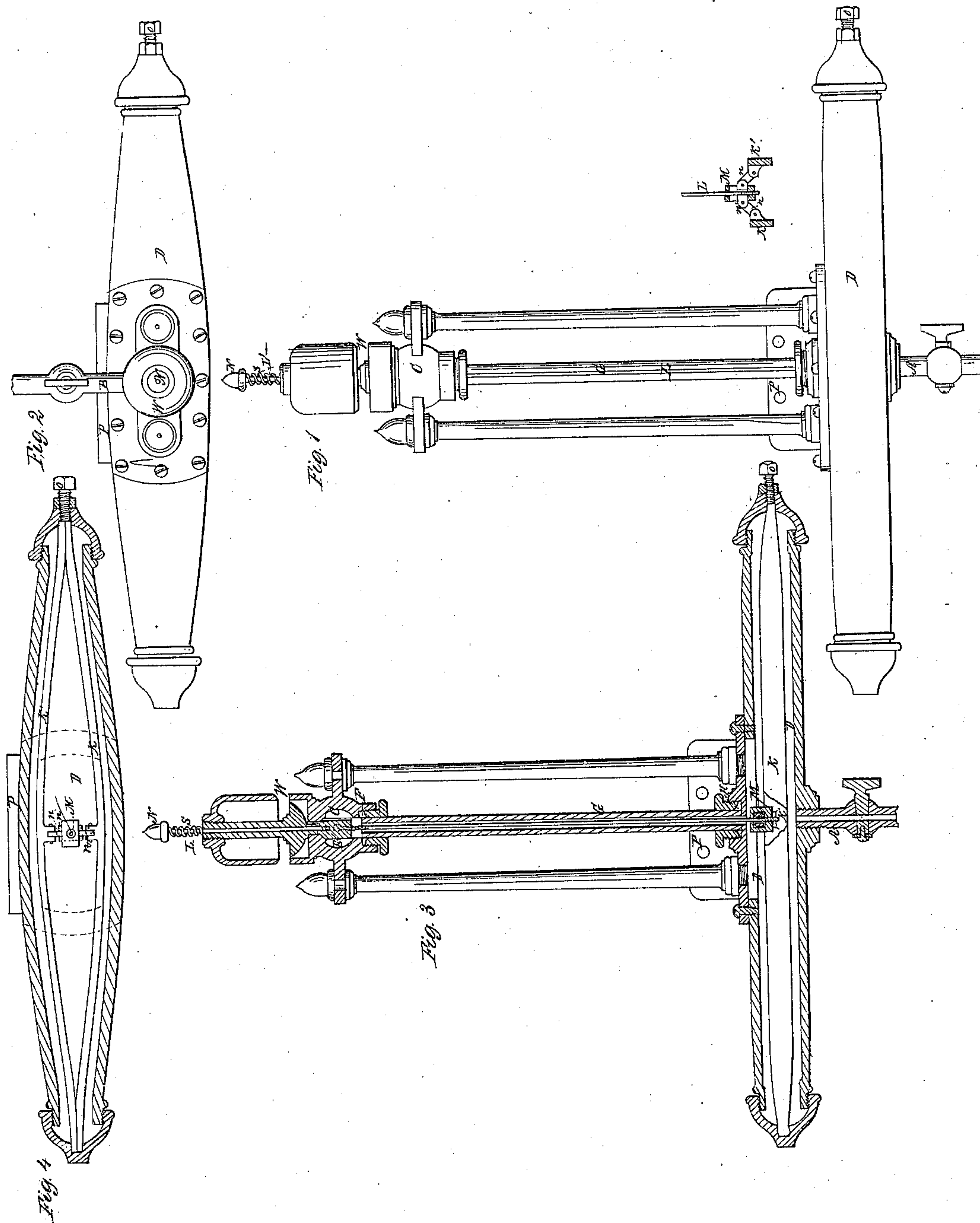


J. Whitmore,
Steam-Boiler Indicator.

No 21,040.

Patented July 27, 1858.



UNITED STATES PATENT OFFICE.

JOS. WHITMORE, OF LOWELL, MASSACHUSETTS.

ALARM-GAGE FOR STEAM-BOILERS.

Specification of Letters Patent No. 21,040, dated July 27, 1858.

To all whom it may concern:

Be it known that I, JOSEPH WHITMORE, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a new and useful Improvement in a Combined Alarm and Gage for Steam-Boilers, the object of which is to aid in insuring the safety of boilers by giving a loud alarm when the water in the boiler stands below a certain level; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

Figure 1 represents an elevation of my apparatus. Fig. 2 is a plan or top view. Fig. 3 is a longitudinal vertical section. Fig. 4 is a horizontal section through the water box.

The apparatus as here shown is to be bolted, by means of the flanch P, to the outside of the boiler or to some other convenient object, at such a height with reference to the proper level of the water in the boiler, as shall bring the zero (0,) mark of the glass gage tube G, on a level with the same; then when the engineer is at hand, he can tell by looking at this gage, what the height of water is, in his boiler. I do not lay claim to this part of the device, as it is in common use, but if the engineer is not at hand when the water gets low in the boiler, my device warns him of danger and calls him to his duty by a shrill whistle.

From the back side of the chamber C, there runs a tube B, Fig. 2, provided with a stop cock, which tube forms a communication between the upper part of the boiler where steam is confined, and the inside of the chamber C. In the top of this chamber C, is a valve E, which is kept closed by the pressure of steam against it. A stuffing box F, in the bottom of this chamber forms a tight joint around the glass gage tube G, which forms a communication between the chamber C, and the water box D. The stuffing box H in the cover of the water box making a tight joint around the bottom of the glass gage tube G.

A is a tube screwed into the bottom of the water box—and forms a communication between the lower part of the boiler where the water stands, and the inside of the water box D. Thus water flowing from the boiler through the tube A, and steam

through the tube B, they meet in the glass gage tube G, at the same height which they maintain in the boiler.

Within the water box D, and extending the whole length thereof, are two bow shaped strips K, K' of brass, forming an elliptical spring, the extremities of which are confined in the ends of the box. The box is made of such a shape that the spring shall not come in contact with it, save at the ends as aforementioned.

The two strips K K' forming the spring are connected together at the middle by three links *n*, *n'*, *n''*, which are jointed together as shown in Figs. 4 and 5. M, is a brass piece having an oblong hole through it, which is occupied by the middle link *n'*. The rod L passes through the upper part of piece M,—through the link—and its lower end is screwed into the lower side of brass piece M. The upper end of the rod is made fast to valve E. Now when the water gets so low in the boiler, as to be below the level of the box D, steam takes the place of the water in the box and acts upon the spring K K', causing it to expand, thus straightening out the links which connect the two parts, and in doing so, pulling down the rod L, which draws down the valve E and allows the steam to escape into the steam whistle W above, and thus producing a loud noise, which will be continued until water is supplied to the boiler; and this being done, water will again fill the water box D, and cause the spring K, K', to contract, thus loosening the links, and allowing the valve E, to shut off the steam from the whistle. The hole in the piece M is of sufficient height to allow the link *n'*, to slide upward on the rod L, when contraction of the spring continues after the valve is closed.

To insure the rise of the valve E, to its seat, a rod L', is fastened to the top thereof, which, passing out of the top of the whistle is attached to a spring S, which draws the valve E to its seat, as soon as the contraction of the spring allows it to rise. The thumb nut N on the end of this rod, secures the spring in place and also serves as a means by which the rod L may be screwed more or less into the bottom of the brass piece M, thereby making the action of the spring K K', on the valve E adjustable.

O, is an adjusting screw by which the spring K K', is properly adjusted to place.

Having thus described my invention, what

I claim as new and desire to secure by Letters Patent is:

I claim the combination of the steam whistle W, valve E, rod L, spring K, K', and its connections, and box D, when used in connection with a steam boiler for the purposes and substantially as herein set forth.

In witness whereof I have hereunto set my signature this thirty first day of May A D 1858.

JOSEPH WHITMORE.

In presence of—

A. G. COOK,
S. W. HUSE.