

E. Clark,

101583

Steam Gauge and Registering

Detector.

PATENTED APR 5 1870

fig. 1.

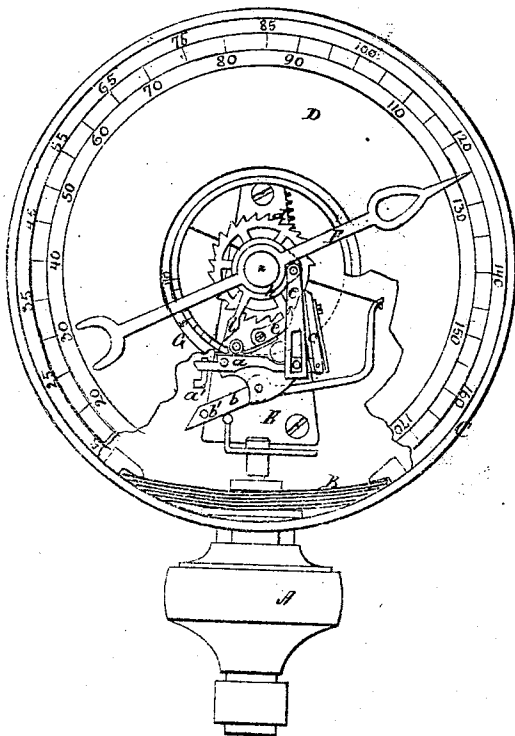
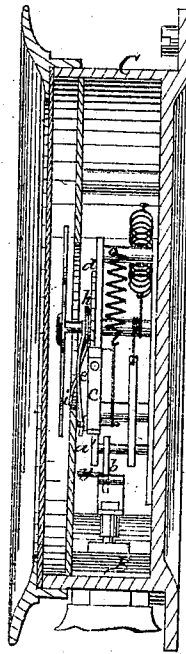


fig. 2.



Witnesses:

Victor Hagmann
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UNITED STATES PATENT OFFICE.

ELIJAH CLARK, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO UNITED STATES STEAM GAGE COMPANY, OF SAME PLACE.

IMPROVEMENT IN REGISTERING STEAM-GAGE.

Specification forming part of Letters Patent No. 101,583, dated April 5, 1870.

To all whom it may concern:

Be it known that I, ELIJAH CLARK, of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and Improved Steam-Pressure Gage and Detector; 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, making a part of this specification, in which—

Figure 1 is a plan view, and Fig. 2 is a diametrical transverse section.

This invention has for its main object to prevent engineers from raising the pressure of steam upon their boilers beyond a certain fixed limit.

To this end the invention consists in an apparatus connected with the pressure-gage that both registers the number of times the index has passed the fixed limit, and also registers the highest point the index has reached, said apparatus being, as is usual, inclosed within a locked and sealed box, which prevents the engineer from tampering with it, so that the owner or other person in authority can instantly perceive when his vessel comes in from a trip whether at any time during the same, and how often and how much, the engineer has carried steam beyond the prescribed limit.

In the drawings, A is the hollow knob, that receives steam direct from the boiler and transmits it to the spring B, placed within the inclosing-case C, that is covered by the dial-plate D. This spring is rendered inaccessible to water by a passage leading from the chamber to the exterior of the knob A, which conducts all moisture away.

As there is nothing new in the gage mechanism beyond the foregoing, it is needless for me further to describe the same.

To subserve the purpose of a detector, there is adapted to the gage mechanism the following apparatus: A lever, *a*, pivoted to the horizontal plate E, and having a set-screw, *a'*, projecting from near one end, which set-screw lies in the path of the pin *b'*, extending upward from the arm *b*, that receives the thrust of the spring and communicates the same to the index-finger F, which set-screw is moved to one

side when the spring is undergoing a pressure above that prescribed as the maximum, the set-screw being so placed that not till such a pressure is brought to bear upon the spring does the pin *b'* reach it.

An arm, *c*, pivoted to the opposite extremity of the lever *a*, and having a pointed end, which is kept by a spring in contact with the ratchet-wheel *d*, the teeth of which are numbered from 1 to 31, consecutively, and which is connected with a spring-detent, *e*, the moving aside of the set-screw *a'* before described having the effect to withdraw the arm *c* from the ratchet *d*, which arm returns to the ratchet again and moves it by the space of one tooth every time the pin *b'* withdraws from contact with the set-screw, so that the figure inscribed upon that tooth of the ratchet-wheel against which the arm *c* bears indicates infallibly how many times steam has run above the limit of pressure, a small space being left between the first and last teeth of the ratchet *d*, to the end that, should the misconduct of the engineer ever be so great as to bring the arm *c* to the last tooth, it would be out of his power to wipe out the record against him by running the ratchet on till the arm *c* was again in contact with tooth No. 1, the only thing to be done after reaching the last tooth being to unlock the box and reset the register, which, as was before explained, the engineer cannot do.

An arm, *e*, having near one end a slot, *e'*, through which passes a pin projecting upward from the lever *a*, and jointed at its other extremity to one side of a disk, *h*, whose axis is the shaft of the index-finger F, from another point of the edge of which disk projects a smaller index-finger, *i*, which extends over a scale, G, on the inner edge of the dial-plate, which scale is divided into ten equal parts, each of which indicates ten pounds of pressure, so that if the pin *b'* moves the set-screw *a'* so far to one side as to cause the lever *a* to draw, by means of the connecting-arm *e*, the finger *i* over a portion of the scale G, that portion indicates the number of pounds excess over the limit of pressure which has been attained.

The index-finger *i* never goes back, nor does

the ratchet-wheel *d*, so that the records made by these devices are not destroyed until the apparatus is set again.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the levers *a* and *c* with the registering-wheel *d* and with the lever *b*, or such other part of the pressure-gage mechanism as receives the thrust of the spring B, substantially in the manner described, and for the purpose of recording the number of times that pressure has exceeded the prescribed limit.

2. The combination of the lever *a*, connecting-rod *e*, disk *h*, and index-finger *i* with the lever *b*, or such other part of the pressure-gage mechanism as receives the thrust of the spring B, substantially in the manner described, and for the purpose of recording the excess of pressure above the prescribed limit.

E. CLARK.

Witnesses:

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