

THOMAS C. HARGRAVE.

Improvement in Pressure-Gauges.

No. 127,874.

Patented June 11, 1872.

Fig. 1.

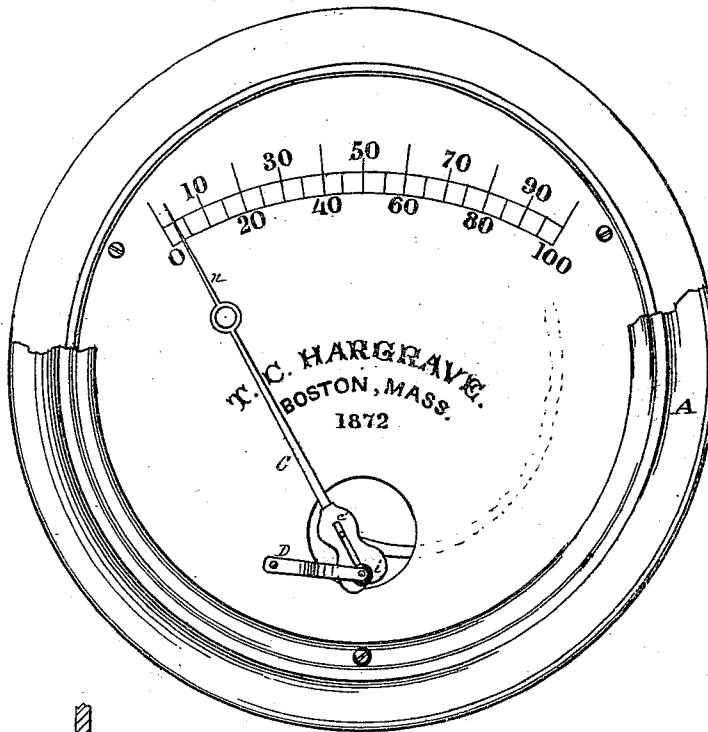


Fig. 3.

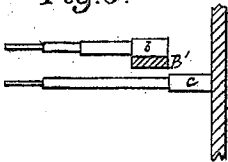
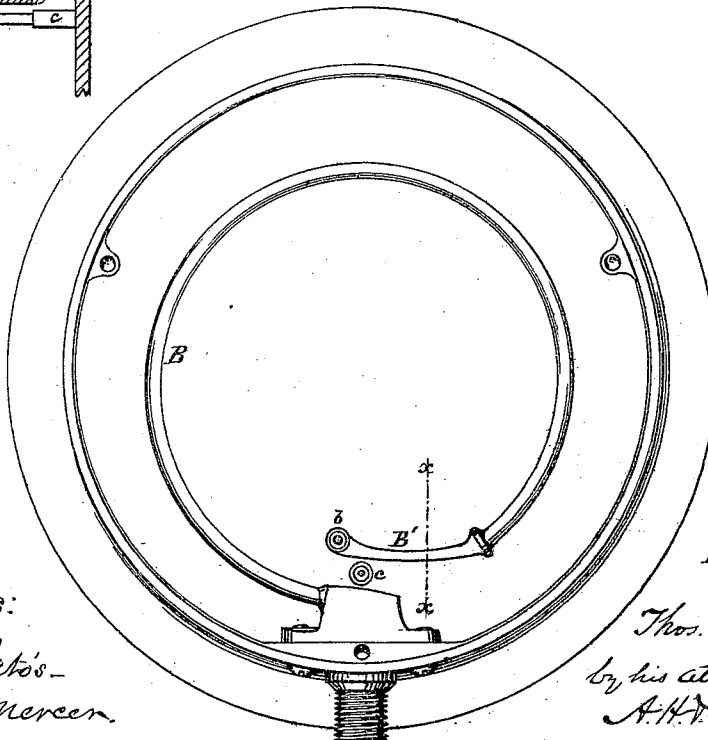


Fig. 2.



Witnesses:

Fredk. Art's-
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Inventor:

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by his atty.
A. H. T. R. K. Evans.

UNITED STATES PATENT OFFICE.

THOMAS C. HARGRAVE, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN PRESSURE-GAUGES.

Specification forming part of Letters Patent No. 127,874, dated June 11, 1872.

To all whom it may concern:

Be it known that I, THOMAS C. HARGRAVE, of the city of Boston and State of Massachusetts, have invented certain Improvements in Pressure-Gauges; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a plan view of my improved gauge. Fig. 2 is the same with the dial-plate and hand removed. Fig. 3 is a cross-section on the line *x x*.

Heretofore great need has been felt by the public for a cheap and at the same time accurate pressure-gauge to apply to small machinery, soda-fountains, cooking-ranges, &c.; and one object of my invention is to provide such a gauge. The great difficulty heretofore has been the cost of the internal mechanism of pressure-gauges, and the fact that such mechanism required re-adjusting from time to time. Another object of my invention is to overcome the difficulty experienced in all pressure-gauges, of causing the index-hand to move forward on the dial-plate a sufficient distance to mark clearly the pressure, after the pressure has become heavy and the spring has become stiffened thereby. It is at this point it becomes important to note quickly and clearly the variations of the pressure on the gauge; but as gauges have been heretofore constructed, the stiffening of the spring has prevented or hindered the movement of the index-hand at the very moment the distinct movement of the hand is the most important, as indicating a high or dangerous pressure of steam.

Having thus stated the objects of my invention I will proceed to describe the exact manner in which I have carried it out.

My invention consists in attaching an indicating-hand which traverses the dial to a spindle, and constructing it with a slot, in which moves a pin attached directly to the steam-spring.

In the said drawing, A is the casing of a gauge, and B the pressure-spring. On the end of the pressure-spring, or some prolongation thereof, is the pin *b*, which is turned very small at its upper end. This small end of the

pin *b* passes up through a slot, *c'*, in the indicating-hand C, which rests on a pillar, *c*, which is set firmly in the back of the gauge-case and rising to a level with the pin *b*. The hand C at its point of pivoting has a bushing, *i*, passing through it, which forms a journal on the pillar *c*, and which rests lightly upon a shoulder formed on said pillar. The spring D on the dial-plate, by a slight pressure upon the top of the pillar *c*, prevents the hand C from falling from its proper position.

The operation is as follows: When the pressure is on the pressure-spring the spring expands, and the pin *b* working in the slot *c'* draws the hand C across the dial-plate, and thus registers by the point *n* the amount of pressure upon the spring. It is evident from the construction of the slotted hand C and the position of the pillar *c* and pin *b*, as shown in Figs. 1 and 2 of the said drawing, that as the spring B expands and draws the hand C the pin *b* will gradually be caused to slide down the slot *c'* toward the pillar *b* or the center of the circle in which the hand moves; then, as the spring expands and stiffens, and its movement becomes gradually less and less, the pin *b* is constantly passing into and traversing the arc of a diminished circle; and hence a diminished action in the movement of the spring is counteracted by an increased travel of the index-hand by means of the constant change of the point of contact between the pin *b* and slotted hand, the pin *b* moving in a gradually-decreasing arc.

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

The arrangement of the pressure-spring, in direct connection with the index, by means of a pin moving in a slot in the said index between its fulcrum and its point, whereby, as the said steam-spring expands its point of contact with the index is brought gradually nearer its fulcrum pillar *c*, substantially as and for the purpose set forth.

T. C. HARGRAVE.

Witnesses:

T. C. CONNOLLY,
THOS. S. MERCER.