C. C. SCHMIDT.

Steam Pressure Gage.

No. 50,208. Patented Sept. 26, 1865.

Fig. 3.

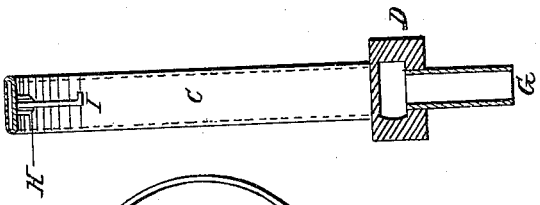


Fig. 2.

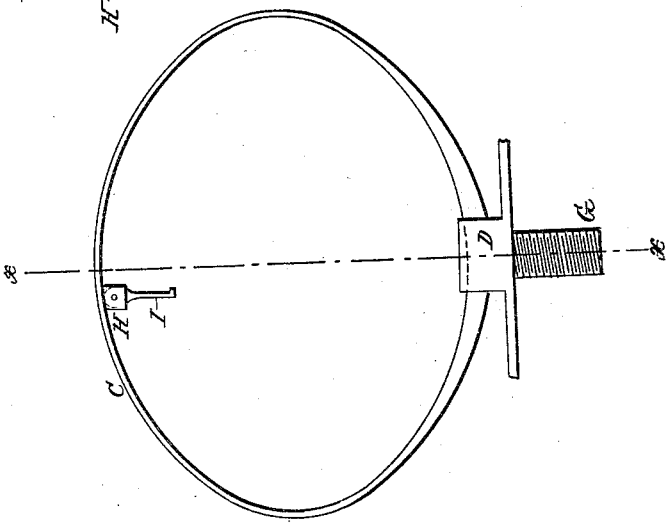
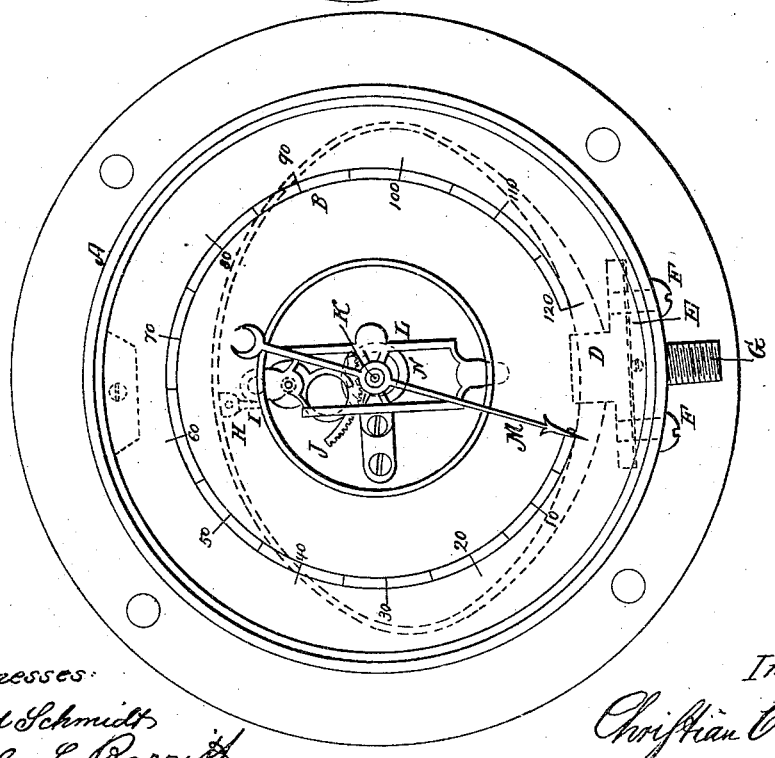


Fig. 1.



Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

CHRISTIAN C. SCHMIDT, OF NEW YORK, N. Y., ASSIGNOR TO A. SCHMIDT & BROTHERS, OF SAME PLACE.

IMPROVEMENT IN STEAM-PRESSURE GAGES.

Specification forming part of Letters Patent No. **50,208**, dated September 26, 1865.

To all whom it may concern:

Be it known that I, CHRISTIAN C. SCHMIDT, of the city, county and State of New York, have invented certain new and useful Improvements in Steam-Gages; and I do hereby declare the following to be a full description of the same.

The nature of my invention consists in making an ovate continuous or endless steam-spring, in contradistinction to a divided steam-spring, whereby I am enabled to operate the indicator or pointer uniformly and certainly in any position in which the gage is placed, and at the same time maintain it steadily at the exact pressure of steam in the boiler. In the ordinary divided steam-spring this is not practicable, owing to the sensitiveness of the spring to any jarring or trembling motion in the boat or locomotive in consequence of its being secured to the indicator-case at one end only, thus leaving the entire circle of such springs free to vibrate in response to any pulsation of the boat or other fixture to which it is secured, as well as to the pressure of the steam acting on it. The consequence of this double action in the indicators of such divided steam-springs is to cause the indicator to have a constant vibratory motion of between five and ten pounds pressure, as represented on the dial. My improvements entirely overcome this very serious objection to the otherwise very valuable properties of the steam-gage.

To describe my invention more particularly I will refer to the accompanying drawings, forming a part of this specification, the same letters of reference, wherever they occur, referring to like parts.

Figure 1 is a plan view of the steam-gage, having, in dotted outline, the steam-spring and attachments for operating the indicator. Fig. 2 is a detached view of the steam-spring. Fig. 3 is a cut section of the same through the line *x x*, Fig. 2.

Letter A is the case of an ordinary steam-gage, and B is the dial-plate, marked off in subdivisions of ten pounds pressure from ten to one hundred and twenty pounds. In this case is secured the steam-spring C by means of a hollow joint, D, into which both ends of the spring C is secured, and which is fastened to a ledge or shoulder, E, on the inside of the case A by means of bolts or screws F.

From the bottom side of the hollow joint is a screw-tap, G, for connecting with the boiler. The form of the steam-spring is oval or oblong, and made a little thicker at its point of intersection with the hollow joint.

The object of making the spring of an oval or oblong form is to obtain the power of the steam, because if the spring were made of a perfect round or circle with its ends united in the hollow joint, there would be no indication of pressure in the spring; but by making it of the form represented, or of an oblong form, the long sides of the spring become as delicately sensitive to the pressure of the steam as any steam-springs ever used, while it is much more steady in its action, in consequence of the great support and firmness with which it is held in the hollow joint.

At the upper side of the spring is a stud, H, into which one end of a jointed stem, I, is secured, while the other end of it connects with the head of a quadrant-shaped rack, J, which gears into a pinion on the indicator-spindle K, secured in a frame, L, to the back of the case A in any usual way. The object of this arrangement of those several parts is to operate the indicator M, which is kept in position by the hair-spring N, as shown in red outline. This is effected by the steam causing the spring to flatten. By so doing the quadrant-shaped rack is vibrated backward, and thus rotates the pinion on the spindle K, which carries the indicator round on the dial-plate to the point representing the pressure of steam in the boiler, and there steadily holds it, either in an ascending or descending scale, without any adjutory oscillations or vibrations other than what is alone due to the varying pressure of the steam in the boiler.

It will be obvious that the apparatus for operating the indicator is the same as commonly used in steam-gages. I therefore make no claim of invention for this part of the steam-gage irrespective of its combination with my improved spring.

Having now described my invention, I will

proceed to set forth what I claim and desire to secure by Letters Patent of the United States:

1. The continuous endless oblong spring, for the purposes hereinbefore set forth.

2. The construction of the spring thicker at its shank or point of connection with the hollow joint than throughout its length, whereby to give more support to the spring, for the purposes hereinbefore set forth.

3. The hollow endless spring hereinbefore described, in combination with the quadrant-shaped rack and indicator, for the purpose of registering the pressure of steam in steam-generators, substantially as hereinbefore set forth.

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