2 Sheets—Sheet 1.

R. C. BLAKE.

Steam-Gages.

No. 210,179. Patented Nov. 26, 1878.

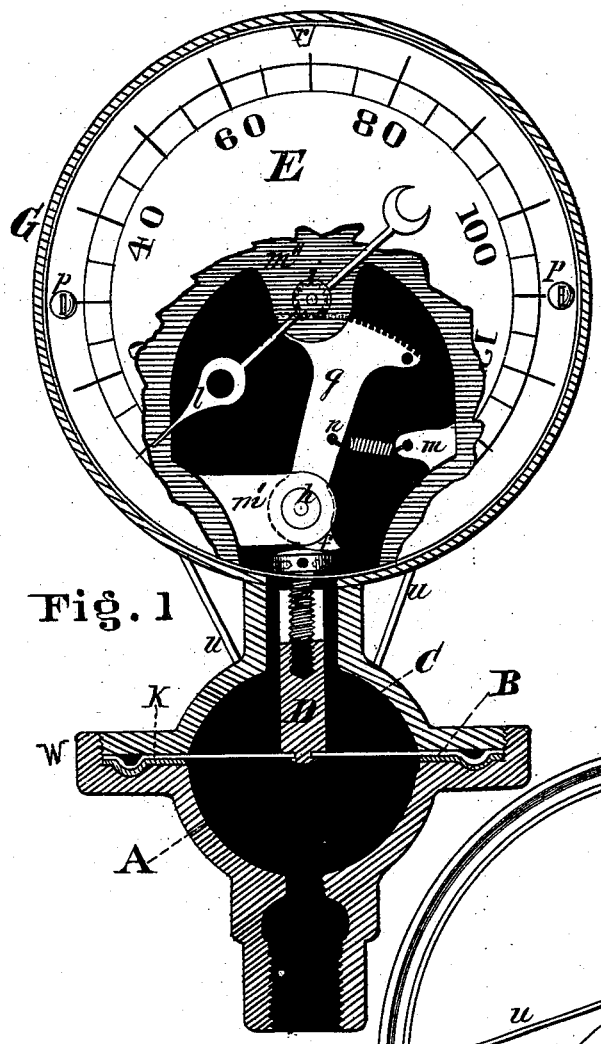

Fig. 1

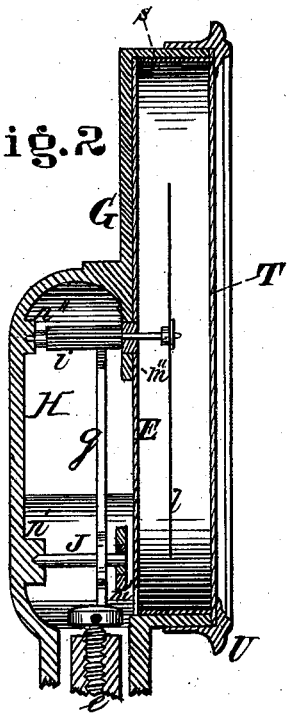

Fig. 2

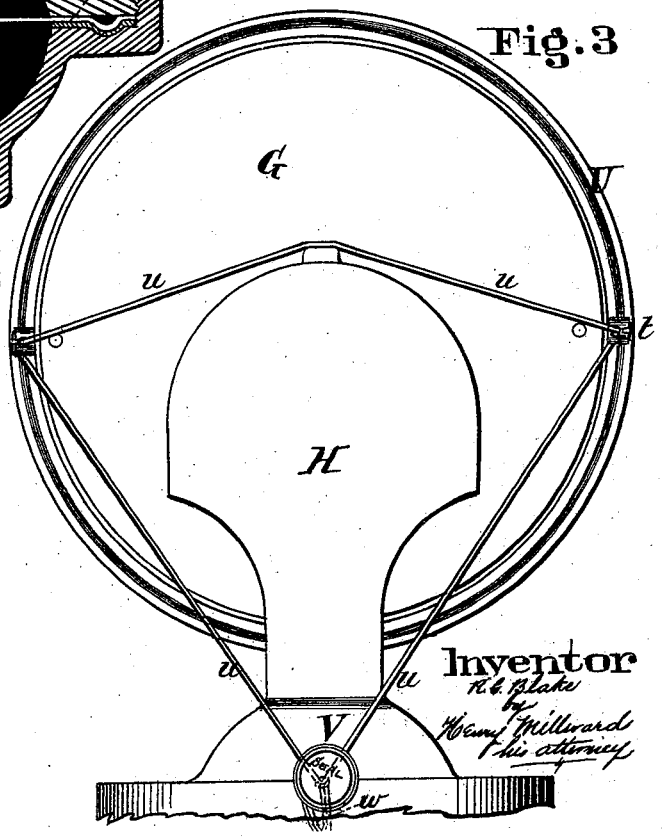

Fig. 3

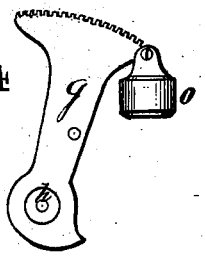

Fig. 4

Attest

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R. C. Blake

by Henry Millward

his attorney

2 Sheets—Sheet 2.

R. C. BLAKE.

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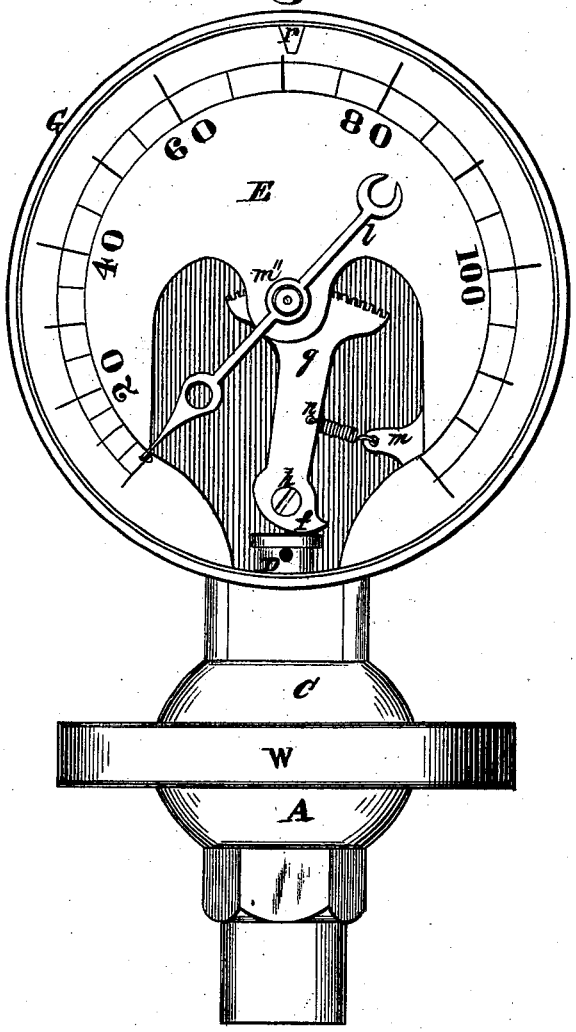
Fig. 5



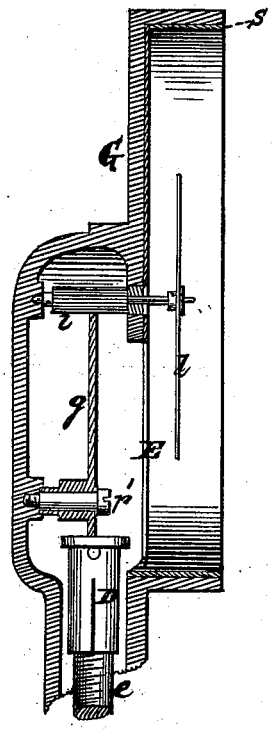


Fig. 6

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Henry J. Snyder

Henry J. Reidy

Richard C. Blake

Inventor

by

Henry Millward

atty

UNITED STATES PATENT OFFICE.

RICHARD C. BLAKE, OF HAMILTON, OHIO, ASSIGNOR TO THE BLAKE STEAM GAGE COMPANY, OF SAME PLACE.

IMPROVEMENT IN STEAM-GAGES.

Specification forming part of Letters Patent No. **210,179**, dated November 26, 1878; application filed June 18, 1877.

To all whom it may concern:

Be it known that I, RICHARD C. BLAKE, of Hamilton, in the county of Butler and State of Ohio, have invented certain new and useful Improvements in Steam-Gages, of which the following is a specification:

This invention relates to certain improvements in steam-gages; and consists in a novel construction and combination of parts, which will be fully hereinafter described.

In the accompanying drawings, Figure 1 is a sectional elevation of a steam-gage embodying my invention. Fig. 2 is a transverse sectional elevation of a portion of the same. Fig. 3 is a vertical elevation of the back part of the gage, representing the sealing device. Fig. 4 is a modification of the means applied for the purpose of retaining the registering device in continued contact with the pressure device by which it is actuated. Fig. 5 is a modification in the construction of the gage, representing a front elevation of a gage with the glass and its retaining-cap removed; and Fig. 6 is a transverse sectional elevation of the same with the steam-chamber and diaphragm removed.

Letters of like character in each of the figures represent corresponding parts.

A is a steam-chamber, separated from the registering device by a diaphragm, B, which is arranged to form a flexible steam-tight division, and at the same time be free to expand in the chamber C when the pressure is applied. An adjustable stem, consisting of a screw-bolt and nut, D *e*, is firmly secured to the diaphragm B. In Fig. 1 the nut D is represented as attached to the diaphragm B, and slotted a portion of its length, so as to grasp the screw-bolt *e* firmly and retain it in any desired position; and in Fig. 6 the screw forms the part of the stem which is to be attached directly to the diaphragm, and the nut abuts against the cam-arm of the index-operating segment.

When the diaphragm is expanded by the applied pressure, the head of the adjustable stem D *e* moves in a vertical direction and bears upon the cam-shaped part *f* of the ratchet-sector *g*, which is pivoted at *h*, causing the toothed part of said sector engaged with pinion *i* to travel in the reverse direction to the line of motion of the part *f*, thereby moving the index-hand, which is connected to the pinion *i*.

When the pressure is removed the diaphragm recedes to its original position, and the index-hand is drawn back by spring *n*, which is attached to the lug *m* of the gage-case G and to the ratchet-sector *g*. The spring *n* may be substituted by weight O, as shown in Fig. 4.

The dial-plate E is represented in Fig. 1 as secured to the gage-case G by means of screws *p;* but these screws may be dispensed with by casting or otherwise forming on the casing G a projection, *r*, with a corresponding recess in the dial-plate E, by which means, aided by the split ring S bearing with its edges upon the dial-plate E and glass T, and the glass being retained by the cap U, which cap is secured to the case G by screws *t*, the dial-plate is firmly secured without the use of screws. The screws *t* have holes for the reception of wire *u*, which passes through both of them, and finally both of its ends through a hole in flanges W, and are there secured by seal V, thus securing the gage against tampering.

In Figs. 1, 2, 5, and 6 the mechanical movement or registering device is represented as being located in a chamber or recess, H, and consists of a ratchet-sector *g*, pinion *i*, and spring *n*, actuated by the diaphragm D and its adjustable stem D *e*, connecting with the index-hand *l*.

In Figs. 1 and 2 the sector *g* is shown as mounted on spindle J, journaled at one end in projection *n'* formed on case G, and at the other end in lug *m'*, which is also formed on or a part of case G. The pinion *i* is represented in the same figures as mounted and journaled in substantially the same manner as the sector *g*, the projections *n''* and lug *m''* being part of case G. The lug *m'* may be made to extend across the chamber H, instead of stopping short, as shown in Fig. 1, and the lug *m''* may be changed in its configuration without changing the utility of the gage.

In Figs. 5 and 6 the sector *g* is shown as

attached to the case G by means of a shouldered screw, r', the lug m' being dispensed with.

A reliable, simple, and economical steam-tight joint is made to separate the steam-chamber A from the chambers C and H by inserting a washer of thick tough paper steeped in boiled linseed-oil between the diaphragm and the flanges.

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

1. An adjustable stem attached to the diaphragm of a steam-gage, and constructed to abut against the cam-shaped arm of a sector, g, for operating the index, the whole combined substantially as and for the object specified.

2. The diaphragm B, adjustable stem D e, sector g, andback spring n or weight O, in combination with the pinion i, substantially as and for the purpose described.

3. The chamber H, provided with lugs m' and m'', cast with and forming part of the gage-case G, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand this 7th day of June, 1877.

RICHD. C. BLAKE.

Witnesses:
HENRY MILLWARD,
A. E. CARR.