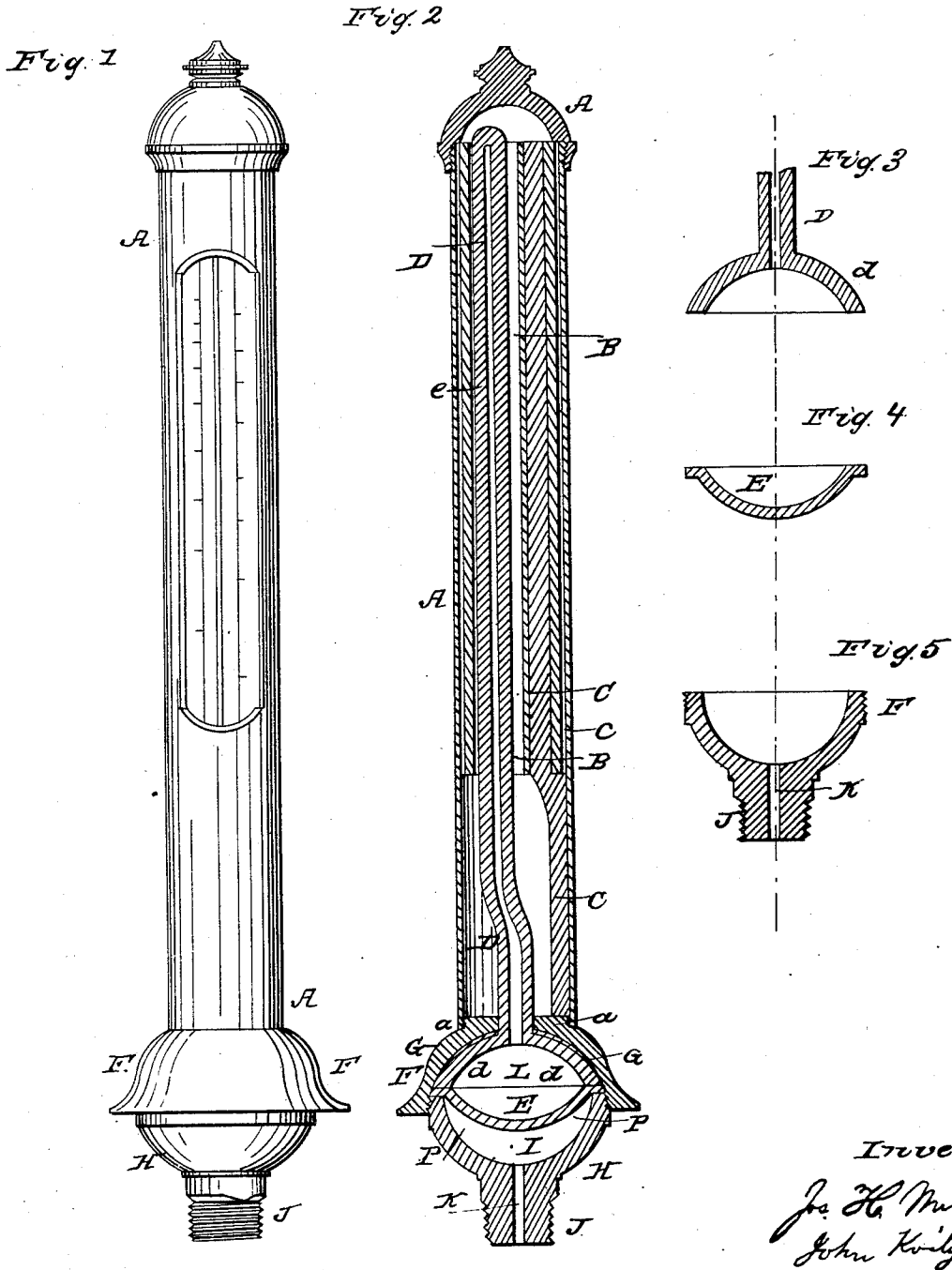


MILLER & KAILEY.
Steam-Pressure Gage.

No. 17,607.

Patented June 16, 1857.



Inventors
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UNITED STATES PATENT OFFICE.

J. H. MILLER AND J. KAILEY, OF CANTON, OHIO, ASSIGNORS TO THEMSELVES AND JOHN DANNER.

STEAM-PRESSURE GAGE.

Specification of Letters Patent No. 17,607, dated June 16, 1857.

To all whom it may concern:

Be it known that we, Jos. H. MILLER and JOHN KAILEY, of Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Mercurial Steam-Gages; and we do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figure 1 is a view of the gage; Fig. 2 vertical section of the same; and Figs. 3, 4, and 5 are sectional views of parts detached.

Like letters refer to like parts in the different views.

A, A, is an ordinary case, inclosing the mercury tube. B, the index plate, C, a piece of wood to which the index plate is secured, c, a glass cylinder which incloses the piece C, the index plate, and a part of the mercury tube, and which rests upon a projection in the piece C. D the mercury tube, d, the bell shaped end of the mercury tube. E, a circular piece of india rubber, or gum elastic, the edge of which fits closely upon the lower edge of the bell shaped end d, of the mercury tube, as seen in Fig. 2. This india rubber plate is also seen in section in Fig. 4. F, the metallic bulb which contains the end of the mercury tube, and which screws in the case A, as seen at a, a. G, a stratum of plaster which is run in between the glass and the casing, and which enables the bell shaped end of the mercury tube to sustain the high pressure to which it is subject. H, the metallic bulb which forms the air and steam chamber, I, under the gum elastic plate E, and which is attached to the steam pipe by the screw J, and which also screws into the bulb F, as seen at P, Figs. 2 and 5. K, the passage through which steam is admitted.

The end d, of the mercury tube, being bell shaped, or concave, it forms a chamber for the mercury; the india rubber E, forming a floor for the chamber. As the metallic bulb H, screws into the bulb F, it presses the india

rubber firmly up against the edge of the bell shaped end of the mercury tube, thus making the mercury chamber L, perfectly tight, excluding air and steam. The mercury is in the bottom of the tube D, and rests upon the india rubber plate, and when the pressure of steam forces the air and steam from the boiler, it passes through the pipe K, into the chamber I, and presses against the india rubber or gum elastic and causes it to assume a more or less concave form, according to the pressure of the steam, thus forcing the mercury upward in the mercury tube, to a greater or less height, the same being indicated by the index plate, thus showing the pressure of the steam. Above the mercury in the tube D is a small portion of liquid, above which last is compressed air. The liquid is for the purpose of preventing oxidation of the mercury.

The gum elastic plate protects the mercury from air and steam, and consequently from all derangement, no matter in what position the gage may be thrown. The gum is also impenetrable to mercury under a high pressure.

Fig. 3 shows a section of the mercury tube, with its bell shaped end, d.

This gage is applicable to both stationary and locomotive engines.

What we claim as our invention, and desire to secure by Letters Patent, is—

The bell shaped end of the mercury tube d, and the manner of fastening the gum elastic floor to the bottom of said bell shaped tube d, by being clamped between the glass d, d, and the metal P, P, thus securely protecting the mercury from air, steam and water; this we claim when arranged and combined, substantially as set forth, for the purpose specified.

JOS. H. MILLER.
JOHN KAILEY.

Witnesses:

THOMAS GOODMAN,
PERKINS WALLACE.