W. K. MILLER.

Steam-Pressure Gage.

No. 15,246. Patented July 1, 1856.

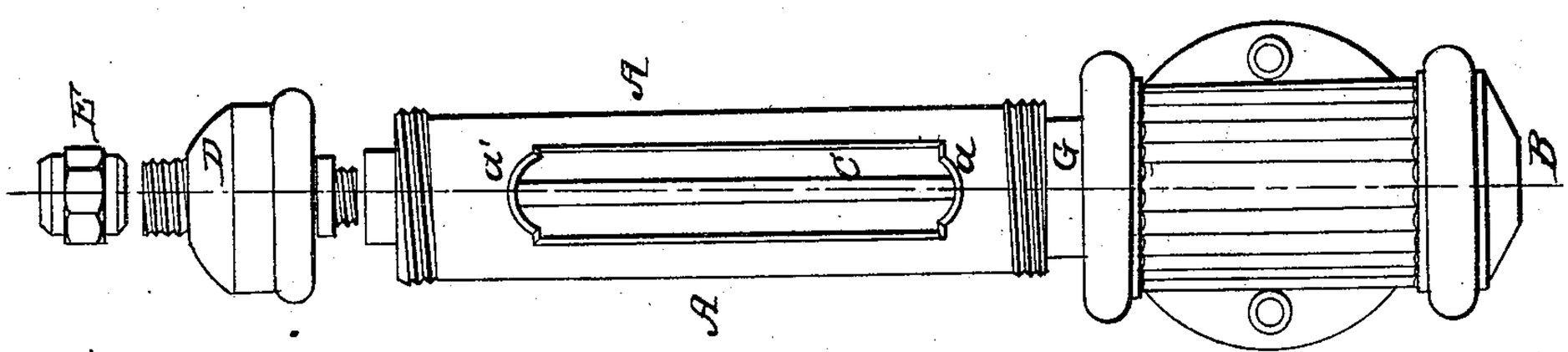

Fig. 3.

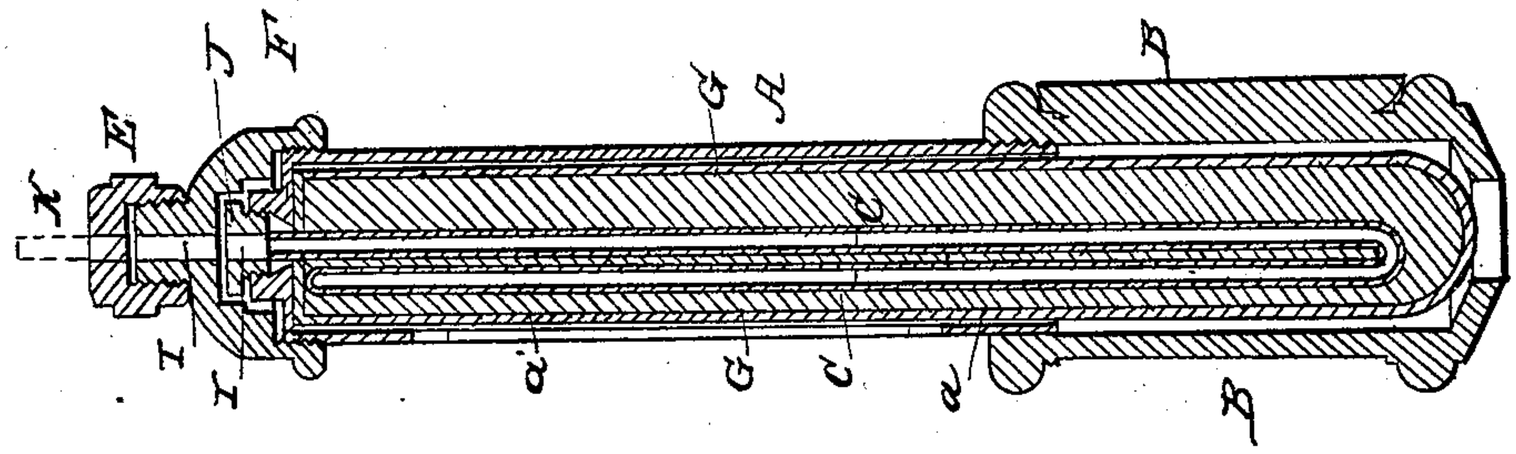

Fig. 2

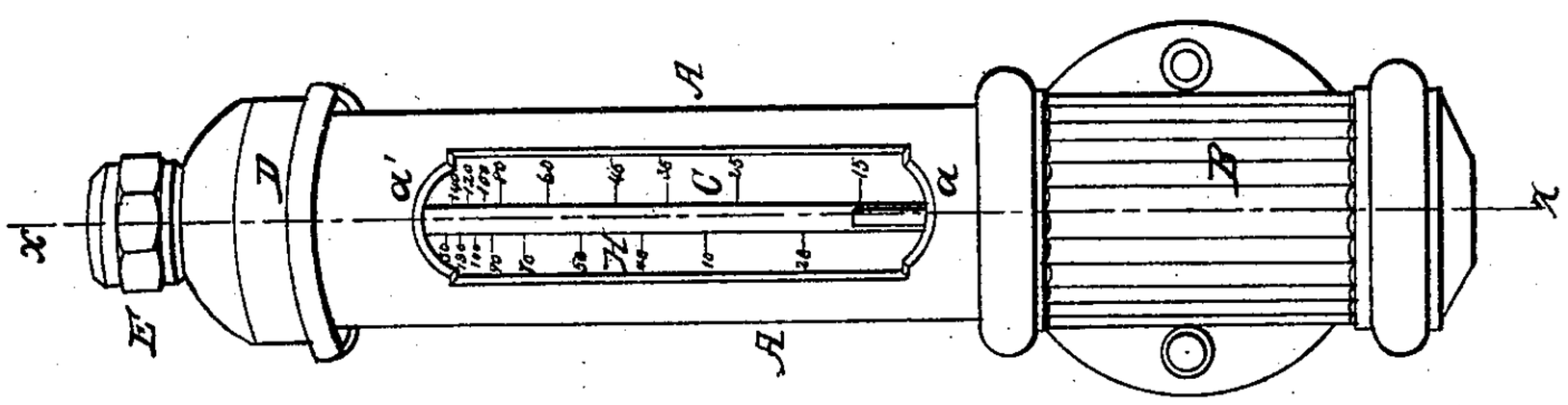

Fig. 1

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

W. K. MILLER, OF CANTON, OHIO.

STEAM-GAGE.

Specification of Letters Patent No. 15,246, dated July 1, 1856.

To all whom it may concern:

Be it known that I, W. K. MILLER, of Canton, in the county of Stark and State of Ohio, have invented a new and Improved Steam-Gage; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a view of the steam gage; Fig. 2, a vertical section in the direction of the line *x x*, in Fig. 1, and Fig. 3, a view of the gage in detached sections.

Like letters refer to like parts in the several views.

The case A, screws into the pedestal B, to which is attached a flange for the purpose of securing the gage to the desired place. In front of the case A, is an opening extending from *a*, to *a'*, which is in front of the index plate, and mercury tube C, Fig. 1, which is V shaped, as seen in Fig. 2. The end of the long limb is open to receive the steam, and the end of the short limb is closed. To the top of the case is screwed the cap D, and to this cap is screwed the nut E, as seen in Fig. 2. At the upper end of the case, is formed a stuffing box F; the long limb of the mercury tube terminates in this stuffing box, and by means of the packing in the box which surrounds the tube, the steam is excluded from the inside of the gage.

Inside of the case A, is placed the glass tube case G, which is made open at the upper end, and closed at the lower, and rests upon the bottom of the pedestal. The mercury tube is placed in this glass case tube, G, and is first incased with plaster of Paris, or other suitable material, so that the plaster will be about one quarter of an inch less in diameter, than the bore of the tube G. The plaster is not allowed to surround the short limb of the mercury tube from *a* to *a'*, inside of the tube G, as this space is left open for the index plate, so that the pressure of steam, and degrees of variation may be noted by the mercury in the tube C, and index H.

The mercury tube with its surroundings of plaster, and index plate, are held in the case or tube G, in the proper position. Plaster is then poured in at the top until the tube is filled up to *a;* as soon as it sets, the tube is laid down horizontally, with the index up; plaster is again poured in until it reaches the back of the index; the open space from *a* to *a'* is then filled up with sand, and plaster is again poured in, when the tube is in a vertical position. By this means, the mercury tube and index plate are secured in place inside of the glass tube G. The sand from the space *a*, *a'* is withdrawn by making a small hole through the plaster at the top of the tube, to allow it to pass out. This space *a*, *a'*, in front of the index occupied by the sand, is filled with alcohol, or other suitable material for the purpose of preventing refraction and oxidation of the index plate by moisture from condensed steam. After the tubes and index plate are thus connected with the plaster, it is placed in the case A, which has an opening in front, corresponding to the size of the index plate. The long limb of the mercury tube, passes into the stuffing box, F, and communicates with the openings I, which pass through the nut J, and cap D, as seen in Fig. 2.

K, represents a steam pipe, which passes through the hole in the nut E, and is provided with a flange so that it may be connected by the nut to the cap D. The steam is conveyed to the mercury tube through the pipe K, and holes I, and thereby acts directly on the mercury in the long limb of the tube, and the pressure is shown by the mercury in the short limb and index.

What I claim as new and for which I desire to secure Letters Patent is—

The arrangement of the siphon tube within the cement holding tube or case G, and both within the metal case with transparent front, and thereby forming a cement and transparent liquid chamber within the case in the manner substantially as described and for the purpose set forth.

W. K. MILLER.

Witnesses:

T. J. HURFORD,

A. G. BAIR.