(No Model.)

A. BOUVIER.

SIPHON TEST BOX FOR GAS MAINS.

No. 522,582. Patented July 10, 1894.

Fig 1

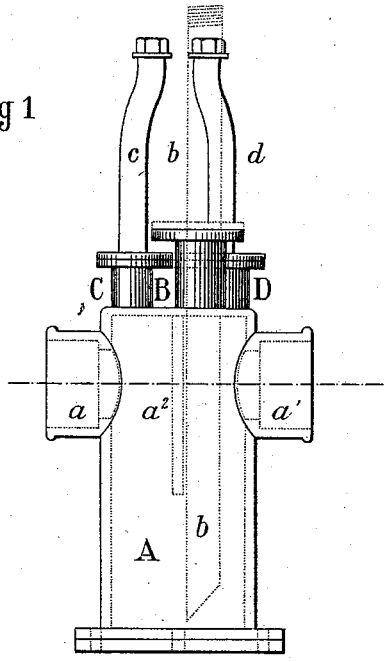


Fig 2

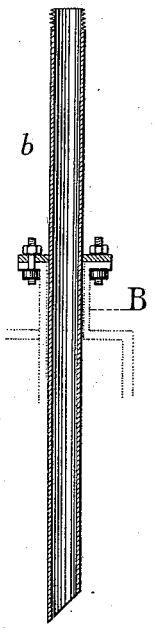


Fig 3

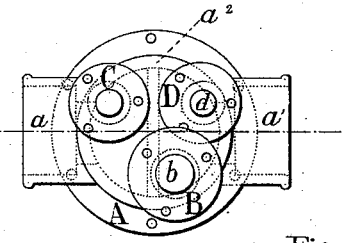
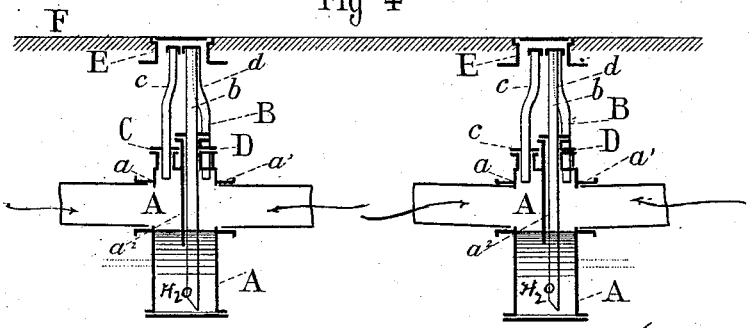


Fig 4



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UNITED STATES PATENT OFFICE.

ADOLPHE BOUVIER, OF LYONS, FRANCE.

SIPHON TEST-BOX FOR GAS-MAINS.

SPECIFICATION forming part of Letters Patent No. 522,582, dated July 10, 1894.

Application filed September 15, 1893. Serial No. 485,575. (No model.) Patented in France September 8, 1890, No. 208,098.

To all whom it may concern:

Be it known that I, ADOLPHE BOUVIER, a citizen of Switzerland, residing at Lyons, in the Republic of France, have invented certain new and useful Improvements in Siphon Test-Boxes for Gas-Mains, (for which I have obtained a patent in France, No. 208,098, dated September 8, 1890;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The apparatus is shown in the annexed drawings, in which—

Figure 1 is a side elevation of the siphon test box. Fig. 2 is a vertical section on the axis of the large tube. Fig. 3 is a plan. Fig. 4 shows two of the siphon test boxes applied to a gas main.

In the figures:—A is a watertight receiver or metal box usually of cast iron, two opposite sides of which are provided with sockets a a' for connecting to the gas main. The inner chamber of the siphon test box is divided into two parts by a central vertical partition a^2 of cast metal which is situated only in the upper portion of the chamber and does not reach to the bottom. Therefore gas entering for example by the socket a passes freely under the partition a^2 and out by the socket a' unless the siphon test box be filled with water to a height sufficient to cover the bottom of the partition. In this case the passage of the gas is stopped and the siphon test box plays the part of a gas cock or hydraulic sluice valve. The siphon test box thus allows the several parts of the main to be isolated one from the other.

The siphon test boxes are preferably arranged at junctions and at the lowest points of the main so as to receive the water of condensation, they therefore play the part of ordinary siphon traps.

Upon the dome or cover of the siphon test box are three flanged cast metal sockets B C D each provided with a pipe marked with the corresponding letter b c d. The socket B receives the iron pipe b beveled at its lower end which dips down to the bottom of the siphon test box and which I call the dip pipe. This dip pipe allows the quantity of water necessary to prevent the passage of the gas, to be introduced into the siphon test box; it is also used for removing the water contained in the siphon test box. This emptying is performed by a hand pump not shown in the drawings.

The two sockets C and D arranged one to the right and the other to the left of the central partition a^2 serve for the passage of the gas for testing the tightness of the main. The siphon test box above described serves as an ordinary siphon trap to receive the water of condensation of the gas, it also serves as a junction piece for the mains and as the hydraulic sluice valve for preventing the passage of the gas at any time, for example in case of a sudden accident, a fire or explosion or when any repairs to the system, replacing pipes, &c., are taking place. It facilitates the laying of new pipes; and renders the greatest service in detecting escapes of gas in the main.

I arrange the siphon test boxes under suitable man holes E as shown in Fig. 4, the line F F representing the ground level.

I proceed as follows for the detection of leaks. A given section of the main comprising a portion of a street or even several adjoining streets in the same quarter, having been isolated from the rest of the main by means of one or several siphon test boxes previously filled with water as shown in Fig. 4, I bring to the spot a portable gasometer of usual construction mounted on wheels which is not shown in the drawings. Suppose that the tube a and consequently also the tube C communicates with the side to which the gas comes freely from the gas works under the usual daytime pressure of the gas for example twenty millimeters of water, and that the tube a' and consequently also the tube D communicates with the isolated section. All the branches fed by this section are closed, thus cutting off the gas from the houses in this section; this interruption will only last half an hour and will only take place once or twice a year. The inlet tube of the gasometer is caused to communicate by means of a rubber tube with the pipe c. The bell of the gasometer rises on account of its float and is filled with gas at the pressure of twenty millimeters. When it is full the inlet pipe c is closed and

the outlet tube of the gasometer is caused to communicate with the pipe *d* of the siphon test box and thus with the section to be tested. Sufficient weight is placed on the bell to give to the gas it contains a high pressure one hundred millimeters for example. This gas is driven back under pressure into the isolated section. If this section be leaky the bell descends with a speed proportional to the size of the leaks. I note in each section how many liters of gas it loses per minute under the testing pressure of one hundred millimeters. I thus know in figures the relative tightness of each section under conditions which augment the sensibility of the test and the precision of the measurement; I know where the leaks are and what is their size; it is then easy to repair them.

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

1. A siphon test box comprising a receiver having means for attachment of a main to the opposite sides thereof, a vertical partition-plate, a^2, fixed transversely within the receiver, across the line of passage of the fluid through the main and the receiver, and having its lower end terminating above the bottom of said receiver, a vertical dip-tube, *b*, within said receiver, alongside of the partition-plate, and with its lower open end extending below said partition plate, and means, substantially as described, for the attachment of a gasometer to said receiver, as and for the purposes set forth.

2. A siphon test box comprising a receiver having the nozzles on its opposite sides for the attachment of a main, the vertical partition-plate a^2 fixed within said receiver transversely across the same, between the nozzles, and having its lower end extended below a line drawn through the main and receiver, the dip-tube, *b*, fixed within the receiver alongside of the partition-plate and with its lower open end terminating close to the bottom of the receiver, and the inlet and egress pipes, *c*, *d*, attached to the upper part of the receiver and communicating with the chamber therein on opposite sides of the partition plate, a^2 substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

ADOLPHE BOUVIER.

Witnesses:
CLYDE SHROPSHIRE,
G. DE MESTRAL.