

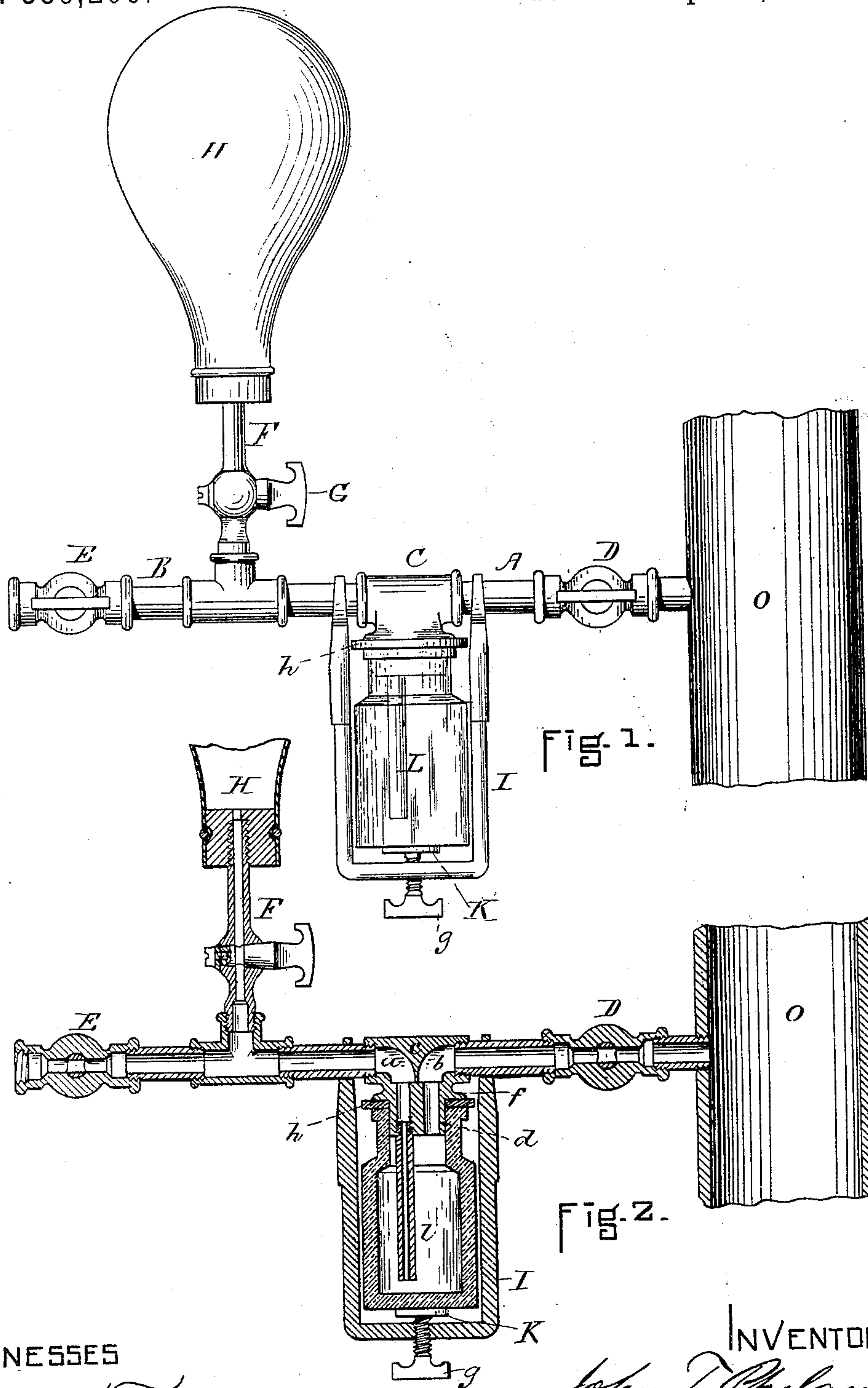
(No Model.)

J. T. PHELAN.

APPARATUS FOR DETECTING LEAKS IN SOIL PIPES.

No. 339,206.

Patented Apr. 6, 1886.



WITNESSES

Geo. W. Lisdale
Ed. A. Deemay

INVENTOR

John T. Phelan
by his attorney
Alley L. Hoagys

UNITED STATES PATENT OFFICE.

JOHN T. PHELAN, OF CAMBRIDGE, MASSACHUSETTS.

APPARATUS FOR DETECTING LEAKS IN SOIL-PIPES.

SPECIFICATION forming part of Letters Patent No. 339,206, dated April 6, 1886.

Application filed August 20, 1885. Serial No. 174,919. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. PHELAN, a citizen of the United States, residing at Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and Improved Apparatus for Detecting Leaks in Soil-Pipes, of which the following is a specification, reference being had to the accompanying drawings.

The method which is now generally used to detect leaks in soil-pipes consists in throwing into the pipe some volatile and strong-smelling substance—as, for example, the oil of peppermint—the vapor of which, if there are any leaks in the pipe, escapes from the leaks and indicates their presence by the smell of the vapor. This method is, however, unsatisfactory in its results; and the object of my invention is to provide means by which leaks, however minute, may be detected and located with accuracy.

To this end the invention consists in an apparatus, substantially as hereinafter described, whereby a current of air impregnated with the vapor of some suitable substance can be forced into the soil-pipe.

In the accompanying drawings is represented a device by means of which my invention may be carried into effect, and in these drawings Figure 1 is a view in elevation, and Fig. 2 is a sectional view.

In these figures the same letters refer to the same parts.

The device represented in the drawings consists of two pipes, A and B, connected together by a joint, C, in which joint are two openings, *a* and *b*, which extend downward and are separated by a partition, *c*. The joint C is provided with an extension, *d*, on which is a flange, *f*. At the extremity of the pipe A is a cock, D, and at the extremity of the pipe B is a cock, E, and attached at right angles to the pipe B is a pipe, F, which is provided with a cock, G. To the end of the pipe F is attached in any suitable manner an elastic bag of rubber, H. Under the joint C, and at right angles to the same, is a U-shaped bar, I, which is attached by its extremities to the pipes on each side of the joint C, and in the lower part of this bar I is an adjustable support, K, for a flask, L, which contains the oil of pepper-

mint or other equivalent substance the vapor of which is to be forced into the soil-pipe. The support K is adjusted by a set-screw, *g*. The extension *d* of the joint B extends into the flask, and between the mouth of the flask and the flange *f* is placed a rubber washer, *h*, by means of which a tight joint is effected when the mouth of the flask is forced against the flange *f* by the set-screw *g*. In the extension *d* of the joint are two perforations, each of which is in connection, respectively, with one of the openings in the joint. A tube, *l*, extending into the liquid in the flask, may be connected with the perforation which is connected with the pipe B.

The operation of the apparatus is as follows: The soil-pipe is first closed at the top and bottom and at all other openings, and the pipe A is then attached to a suitable opening made in the side of the soil-pipe, or is otherwise connected with the same. The cock D is then closed and the cocks E and G are opened. Air is then blown into the elastic bag H through the pipes B and F until it is expanded to any desired extent. The cock E is then closed and the cock D opened, when, by the contraction of the elastic bag H, a current of air is forced from the same, and, passing through the opening *a*, pipe *l*, opening *b*, and pipe A, carries the vapor of the volatile substance contained in the flask L into the soil-pipe C, and if there are any leaks in the soil-pipe the vapor escapes from these leaks and indicates their presence by the odor. The force of the current of air passing into the soil-pipe can be regulated by means of the cock G, and the process can be continued until the soil-pipe is filled with vapor under pressure. It will thus be seen that there is no possibility of an escape of vapor into the air except through leaks in the soil-pipe; and, moreover, for the reason that the vapor is under pressure, the most minute leaks can be detected in a very short time.

The same device may also be used in the same manner for detecting leaks in gas-pipes.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination, substantially as and for the purpose set forth, of the pipes A and B,

the cocks E and D, the elastic bag H, connected to the pipe B by a suitable pipe provided with a cock, and a receptacle for a volatile and strong-smelling substance—such as
5 oil of peppermint or its equivalent—connected to the pipes A B, as described, whereby the current of air passing through the pipes is caused to pass over or through the substance contained in the receptacle.

10 2. The combination, substantially as and for the purpose set forth, of the pipes A and B, the joint C, connecting the same, the openings *a* and *b* in said joint, separated by the partition *c*, the extension *d* of said joint, provided with perforations, as described, and a
15

suitable receptacle, as described, attached to said joint.

3. The combination, substantially as and for the purpose set forth, of the pipes A and B, the joint C, constructed as described, the 20 flask L, bar I, washer *h*, support K, and set-screw *g*.

In witness whereof I have hereunto set my hand in presence of the two subscribing witnesses.

JOHN T. PHELAN.

Witnesses:

ALEX. L. HAYES,

FRED. C. TISDALE.