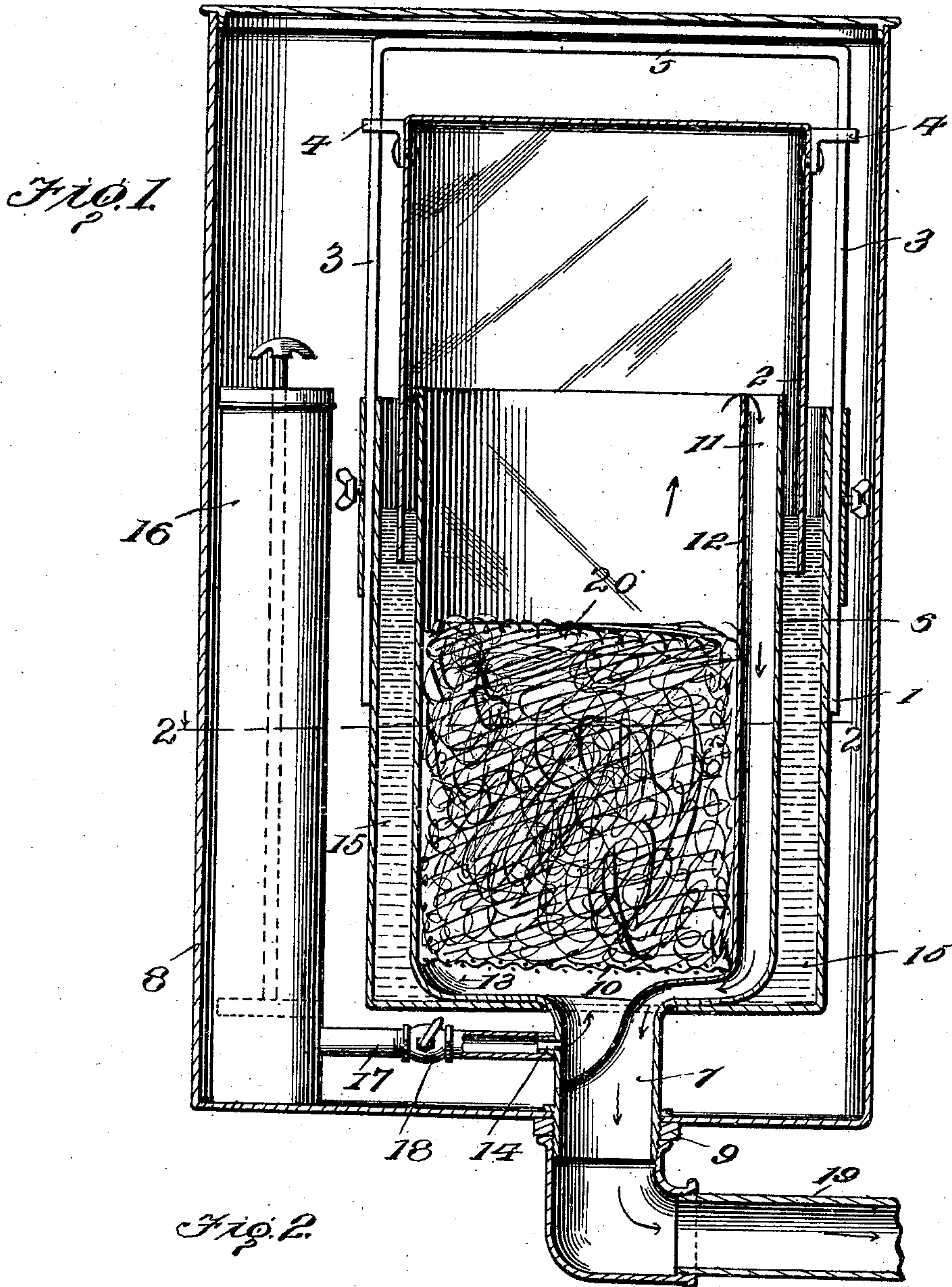


A. F. PHILIP.
PLUMBING SMOKE TESTER.

APPLICATION FILED NOV. 11, 1908. RENEWED AUG. 5, 1909.

933,922.

Patented Sept. 14, 1909.



Witnesses

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UNITED STATES PATENT OFFICE.

ALFRED F. PHILIP, OF ASBURY PARK, NEW JERSEY.

PLUMBING SMOKE-TESTER.

933,922.

Specification of Letters Patent. Patented Sept. 14, 1909.

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To all whom it may concern:

Be it known that I, ALFRED F. PHILIP, citizen of the United States, residing at Asbury Park, in the county of Monmouth and State of New Jersey, have invented certain new and useful Improvements in Plumbing Smoke-Testers, of which the following is a specification.

The present invention has for its object to devise a novel machine utilizing smoke as a means for testing plumbing so that leaks may be rendered visible by jets of smoke issuing from the pipes where leaks exist.

The invention is designed to supply a machine of the character and for the purpose aforesaid which is positive and certain in operation and which may be conveniently handled and easily manufactured, and which in operation will prevent choking or stoppage of the work being tested by forcing any of the combustible material therein utilized for generating the smoke.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof still the preferred embodiment of the invention is indicated in the accompanying drawings.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is to be had to the following description and accompanying drawings in which:

Figure 1 is a vertical central section of a machine embodying the invention. Fig. 2 is a horizontal section on the line 2—2 of Fig. 1, parts being broken away.

Corresponding and like parts are referred to in the following description and indicated in both views of the drawings by the same reference characters.

The machine consists of a receptacle 1 which is open at the top and closed at the bottom. A bell 2 operates within the receptacle 1 in substantially the same manner as the bell of a gasometer. Guides 3 project vertically from the sides of the receptacle 1 and cooperate with eyes 4 projected outward from the upper end of the bell 2 to guide the latter in its vertical movements. The guides 3 may be connected at their upper ends by a cross piece 5. A stand-pipe 6 is located within the receptacle 1 and is connected to the bottom thereof and is open at

opposite ends. The lower end of the stand-pipe is contracted, as indicated at 7 and this contracted portion passes through the bottom of the receptacle 1 and a casing 8, the latter receiving and forming a housing for the device. The lower end of the contracted part 7 is exteriorly threaded to receive a set nut 9 by means of which the stand-pipe 6 and receptacle 1 are secured to the bottom of the casing. A screen or grate 10 is supported within the lower portion of the stand-pipe and sustains the combustible material by means of which the smoke is produced. A passage 11 is provided at one side of the stand-pipe and extends beneath the screen or grate 10 and communicates with the contracted end 7 of said stand-pipe. The passage 11 may be provided in any manner, as by means of a partition 12 forming a part of or secured within the stand-pipe 6 in any manner. A space 13 is provided in the lower portion of the stand-pipe below the screen or grate 10 and a coupling end 14 connects therewith, the same projecting laterally from a side of the reduced end 7 of the stand-pipe.

The space 15 between the receptacle 1 and the stand-pipe 6 is nearly or quite filled with water to form a liquid seal for the bell 2. The bell 2 is prevented from tipping and directed in its vertical movements by means of the guides 3 and is elevated by the air confined thereby when the stand-pipe 6 within the device is in operation.

Air is supplied under pressure for conveying the smoke through the apparatus and through the pipes of the plumbing to be tested by means of a hand pump 16 of any approved construction, the same being connected by means of a pipe 17 to the coupling end 14, said pipe having a valve 18 in its length for cutting off communication between the pump 16 and the stand-pipe 6.

In practice the lower end 7 of the stand-pipe 6 is connected by means of a hose-pipe 19, or other tube or pipe, to the plumbing to be tested. The bell 2 is elevated and cotton waste 20 or other material is supplied to the stand-pipe to produce the smoke when ignited. After the material has been lighted and the bell 2 placed in position, so as cover the stand-pipe, operation of the pump 16 forces air into the lower portion of the stand-pipe, thence upward therethrough into the bell and downward through the passage 11 and out through the end 7 and pipe 19 to the plumbing. In its passage through the stand-

pipe the air becomes impregnated with the smoke produced by combustion of the material 20, thereby charging the pipes of the plumbing with air laden with smoke. If the
5 plumbing is tight and free from leaks, the bell 2 will remain elevated, thereby indicating that the work is tight, but should the bell descend after the pump ceases to operate and the valve 18 is closed, it may be known
10 that the plumbing leaks and by inspection the opening or leak may be readily discovered by the issuance of a jet of smoke from the pipes, as will be readily understood.

Having thus described the invention, what
15 is claimed as new is:

A machine of the character and for the purpose set forth, the same comprising a casing, a receptacle located within the casing, a stand-pipe secured within the receptacle and open at its upper and lower ends

and having its lower end contracted and passed through the bottom of the receptacle and casing, a bell arranged to operate over the stand-pipe and within the receptacle, guides at the sides of the receptacle for
25 directing the bell in its vertical movements, means for supporting smoke producing material within the stand-pipe, a hand pump arranged within the casing and having connection with the lower end of the stand-
30 pipe, and means for connecting the lower end of the passage of said stand-pipe with the plumbing to be tested.

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

ALFRED F. PHILIP. [L. S.]

Witnesses:

EDW. J. DAVIS,
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