No. 886,405. PATENTED MAY 5, 1908.

F. A. RADCLIFFE.

SEWER TRAP.

APPLICATION FILED DEC. 4, 1903. RENEWED NOV. 7, 1907.

Fig. 1

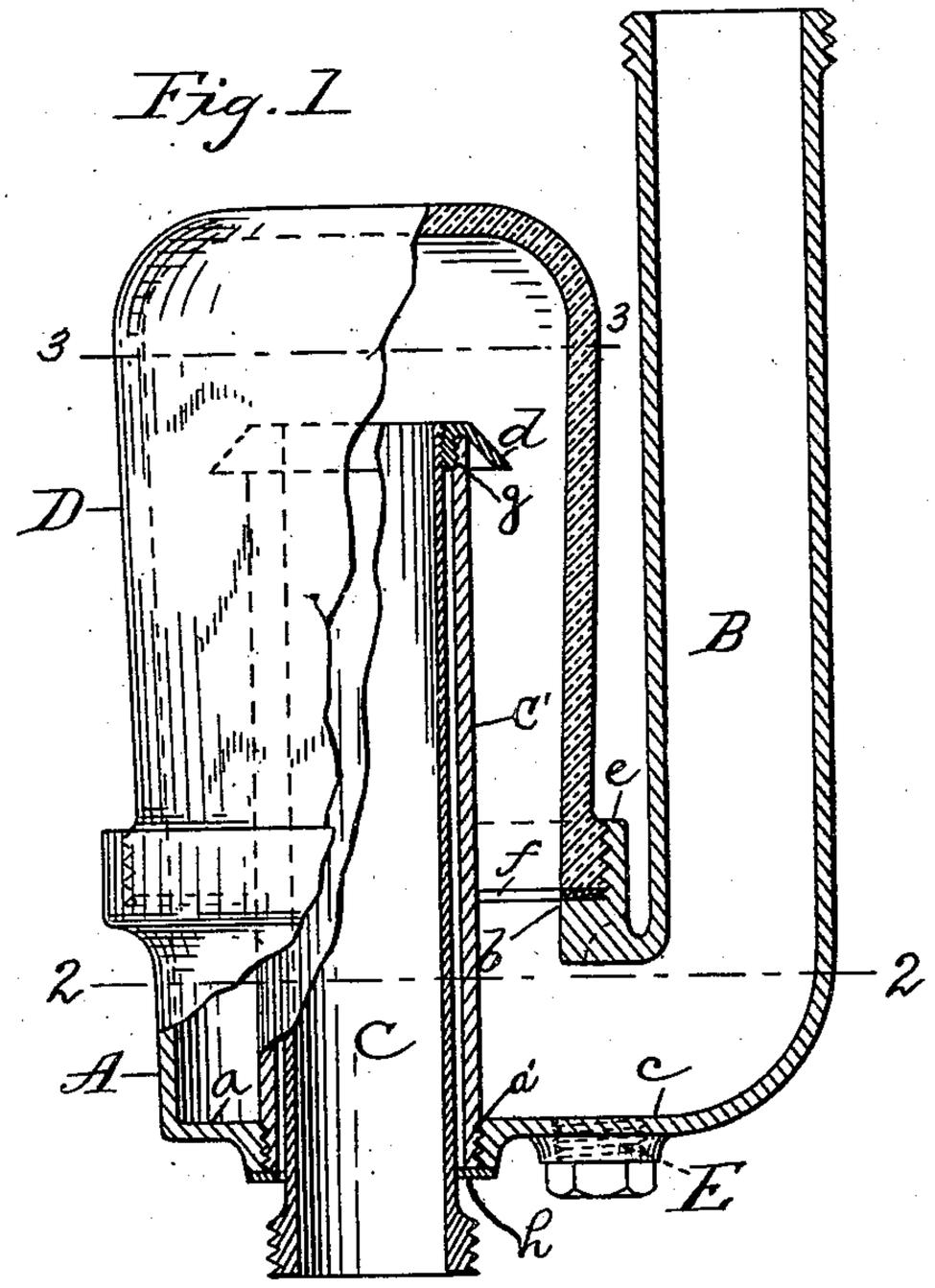


Fig. 2

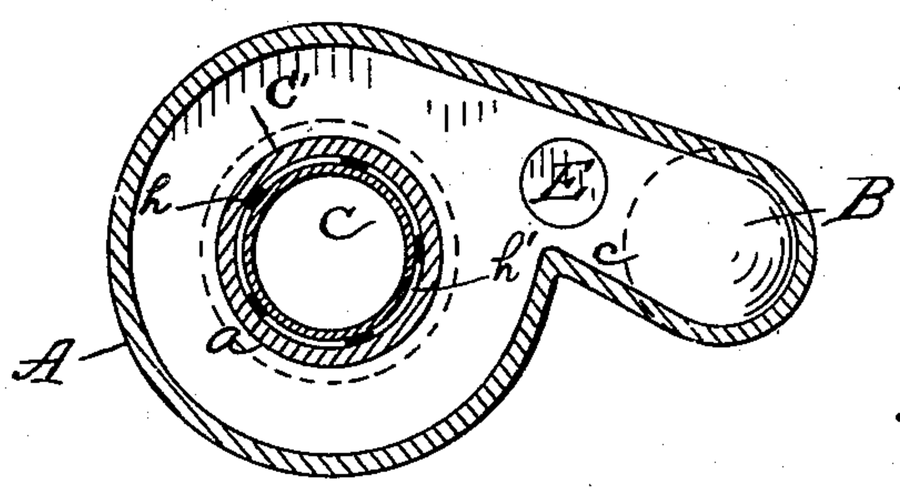
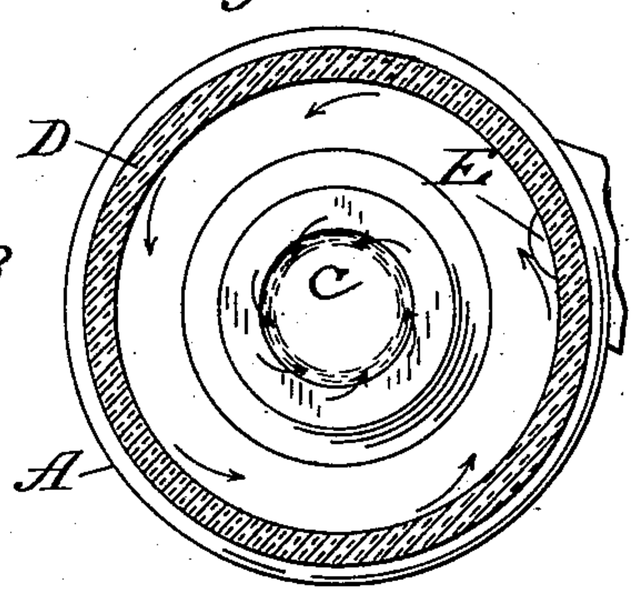


Fig. 3



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SEWER-TRAP.

No. 886,405. Specification of Letters Patent. Patented May 5, 1908.

Application filed December 4, 1903, Serial No. 183,692. Renewed November 7, 1907. Serial No. 401,162.

To all whom it may concern:

Be it known that I, FRANK A. RADCLIFFE, a citizen of the United States, resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Sewer-Traps, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle so as to distinguish it from other inventions.

The object of the invention is to provide an improved sewer trap.

The invention consists of the means hereinafter described, and particularly pointed out in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention; such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

Figure 1 is a view, partly in side elevation, and partly in vertical sectional elevation. Fig. 2 is a top horizontal section on line 2—2 of Fig. 1. Fig. 3 is a detail top horizontal section on line 3—3 of Fig. 1.

A circular trap base A has a flat bottom *a* and has an annular shoulder *b*. An inlet duct B communicates with the trap at a tangent to said circular base, and has its bottom *c* flush with bottom *a*.

The outlet duct C is located vertically within the central portion of the trap. It is located longitudinally within sleeve C′, which sleeve is screwthreaded to the wall of the circular opening *a′* of bottom *a*. Such outlet duct, of suitably less exterior diameter than the interior diameter of the sleeve, and such sleeve, provides a vertical annular channel between themselves, with lower end discharge openings *h′*, for the ready escape therefrom, and on to the floor beneath the trap, of any seal water that may leak into such channel,—so as to instantly and readily disclose waste of the water seal.

While the drawing shows the sleeve as inclosing the entire length of the outlet duct within the trap; yet, it may be shorter, and inclose only a portion of such length. The channel thus formed between the sleeve and the outlet duct has no communication with the latter; and has its discharge into the room, adjacent to the outer side of such outlet duct, below and exterior to the trap. The upper end portions of the outlet duct and of the sleeve are screwthreaded respectively to the inner and the outer sides of the ring support *g;* from which latter depends the annular deflector *d*, projecting outwardly and downwardly.

A dome D is detachably fitted upon shoulder *b*, by screwthread engagement between the outer side of its lower portion, and the inner side of annular flange *e* projecting upwardly around said shoulder *b*. A packing ring *f* is compressed between the upper face of said shoulder and the lower end of said dome.

Short horizontal radial braces *h*, secured at their outer ends to the lower edge of the wall of said central circular opening *a′* in the trap base bottom, have inner end bearing against the sides of the lower portion of the outlet duct, and give stability to the latter.

The bottom of the inlet duct is provided with the detachable plug E, fitted in a cleaning out hole. The inlet water enters the side of the trap at a tangent to its cylindrical formation, and flush with its bottom; thereby causing such inlet water to take a circulatory course around the sides of the trap as the water rises quickly in the latter.

The interior side of the dome, being without any projection to obstruct the upward rotary motion of the inlet water, causes the latter to thoroughly scour the sides of the dome.

The deflector at the upper portion of the outlet pipe prevents such direct upward movement of the inlet water along the outer side of the outlet ducts as would permit of siphonic action occurring,—especially when a number of traps empty, one above another, into the same discharge conduit, and the latter is so inadequately supplied with air as to form a temporary vacuum below the trap.

Air can constantly pass through the trap, so as to avoid siphonage; and, the trap can constantly maintain such a volume of water as to insure complete sealing of gas from the sewer.

As the water whirls upwardly, around and against the interior side of the trap, it carries with it all substances,—to the central upper portion of the trap, in vertical line with the mouth of the outlet duct. Effectual discharge thereof is thus had from the trap.

The sleeve round the outlet duct, for the whole or any desired portion of the latter's length, prevents leakage of seal water into

the outlet duct; and the resulting channel causes seal water leakage to drop into the room exterior to the trap, where it can be instantly and readily observed,—and thus guard against leakage of sewer gas into the room.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any one of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In a sewer trap, the combination of a trap base having an outlet opening, a sleeve connected to said opening, an outlet duct fitted in said sleeve and forming a channel between the two, such channel having a discharge opening exterior to the trap, substantially as set forth.

2. In a sewer trap, the combination of a trap base having an outlet opening, a sleeve connected to said opening, an outlet duct fitted in said sleeve and forming a channel between the two, such channel having no communication with said outlet duct and having a discharge opening exterior to the trap, substantially as set forth.

3. In a sewer trap, the combination of a trap base having an outlet opening, a sleeve connected to said opening, an outlet duct fitted in said sleeve and forming a channel between the two, such channel having no communication with said outlet duct and having a discharge opening exterior to the trap and adjacent to the outer side of said outlet duct, substantially as set forth.

4. In a sewer trap, the combination of a trap base having an outlet opening, a sleeve connected to said opening, an outlet duct fitted in said sleeve and forming a channel between the two, such channel having no communication with said outlet duct and having a discharge opening exterior to the trap and adjacent to the outer side of said outlet duct below the trap, an inlet duct communicating with the trap to one side of said sleeve, substantially as set forth.

5. In a sewer trap, the combination of a trap base having an outlet opening, a sleeve connected to said opening, an outlet duct fitted longitudinally in said sleeve and forming a channel between the two, such channel having a discharge opening exterior to the trap, a dome covering said outlet duct and sleeve and connected to said trap base, substantially as set forth.

6. In a sewer trap, the combination of a trap base having an outlet opening in its bottom, an upright sleeve connected to said opening, a duct fitted longitudinally in said sleeve and forming a channel between the two provided at its lower end with discharge opening exterior to the trap, a dome covering said outlet duct and sleeve and connected to said trap base, an inlet duct communicating with the trap, substantially as set forth.

7. In a sewer trap, the combination of a trap base having its bottom provided with a central outlet opening, an upright sleeve connected to said opening and located centrally within the trap, an outlet duct fitted within said sleeve and forming a channel between the two having no communication with such outlet duct, the lower end of such channel having discharge opening exterior to the trap, a dome covering said duct and sleeve and connected to said base, an inlet duct communicating with one side of the trap, substantially as set forth.

8. In a sewer trap, the combination of a trap base having its bottom provided with a central outlet opening, an upright sleeve connected to said opening and located centrally within the trap, an outlet duct fitted longitudinally within said sleeve and forming a channel between the two, such channel having no communication with said outlet duct and having a lower end discharge opening exterior to the trap and adjacent to the outer side of said outlet duct below the trap, a dome covering said outlet duct and sleeve and connected to said base, an inlet duct communicating with one side of the trap, substantially as set forth.

Signed by me, this 1st day of December, 1903.

FRANK A. RADCLIFFE.

Attested by:
THOS. B. HALL,
D. T. DAVIES.