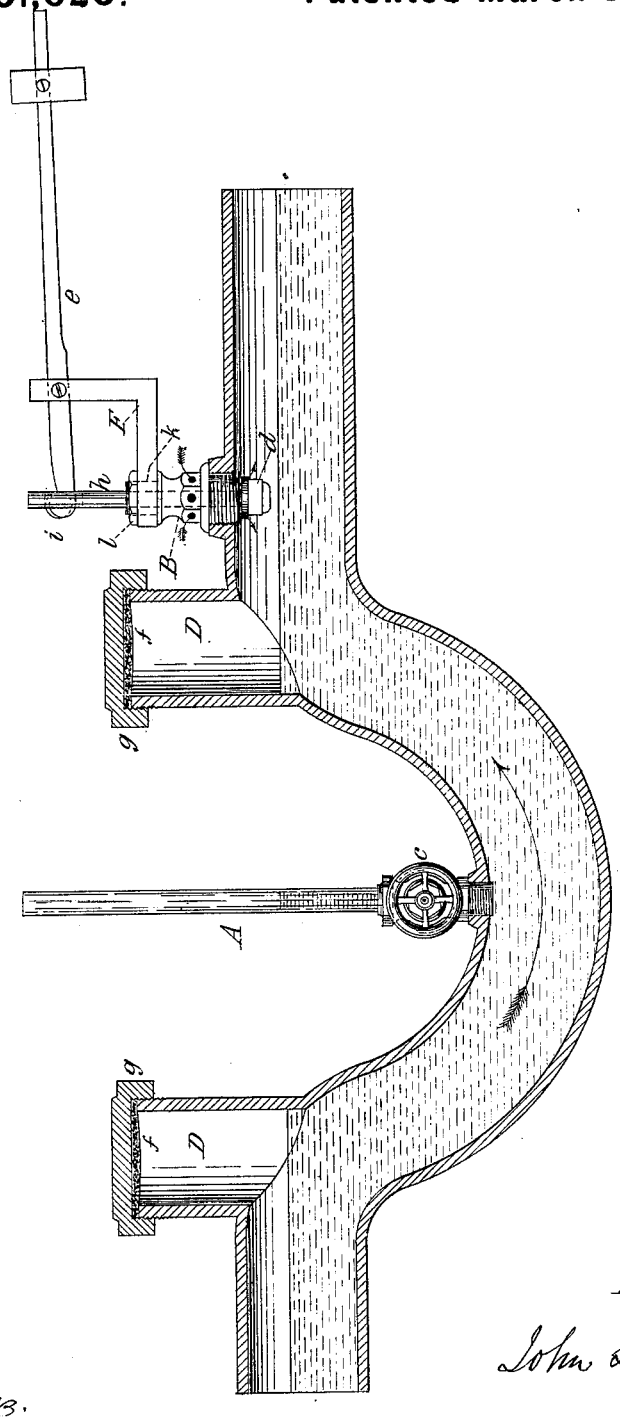
J. L. KNIGHT.

Sewer-Trap.

No. 201,020. Patented March 5, 1878.



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JOHN L. KNIGHT, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWER-TRAPS.

Specification forming part of Letters Patent No. **201,020**, dated March 5, 1878; application filed February 20, 1878.

To all whom it may concern:

Be it known that I, JOHN L. KNIGHT, of New York city, have invented certain new and useful Improvements in Sewer-Traps, of which the following is a specification:

My invention embodies three distinct features, which will be fully described in their order, and each feature of novelty specifically indicated in the concluding clauses.

In the annexed drawing, the figure shows a longitudinal section of my improved trap.

The first feature of my invention consists in the glass water-gage A, inserted in and rising from the bend of the trap, and in which the water of the trap rises, as represented. This serves to constantly indicate the height of water in the trap, so that its safe or unsafe condition may be known at a glance, and precautions accordingly taken against the siphoning of the trap and the escape of the sewer-gas on the one hand, or against overflow on the other. The gage also serves as an alarm, to indicate an obstruction of the pipe, by the rushing of the water, in such event, from the top of the tube; and by the action of the water with reference to the gage, the location of the obstruction may be determined—that is, if the pipe is known to be obstructed, but the water fails to escape from the gage-tube, then this obstruction is before the gage, while if the water rushes from the gage-tube, then this obstruction must be beyond the gage. The gage-tube may be inserted either in the top of the bend, as shown, or on the side, and is preferably provided with the shut-off valve *c*. To prevent any odor that might possibly arise from the small surface of water in the gage, I prefer to deposit thereon a few drops of oil, which forms a sealing-film, impervious to the passage of odors.

The second feature of my invention consists in the special construction of the vacuum-valve. (Shown on the right in the drawing.) The valve-chamber B is formed of a brass cylinder, the lower end of which is threaded and screwed into the trap-pipe, as shown, the lower edge of the cylinder forming the seat for the valve-disk *d*. The valve *d* is also formed of brass, and is faced with a non-corrosive packing, preferably of a plumbago compound known as "Frink's composition." The valve-disk is of a little smaller diameter than the lower end of the cylinder, to enable its ready insertion in the opening of the trap-pipe.

The valve-stem *h* passes through a nice-fitting hole in the top or neck of the valve-cylinder B, and the sides of the cylinder are perforated, as shown, to admit the air, but exclude dust, &c. The valve is carried by a nicely-balanced lever, *e*, the short arm of which passes through a slot in the valve-stem, and is provided with a friction-roller, *i*, which receives the contact of the valve-stem, thus reducing the friction and rendering the valve more sensitive.

The fulcrum-post F rests upon the shouldered neck *k* of the valve-cylinder B, and is held in place by the screwing down of the nut *l*. The fulcrum-post and lever are thus rotatable on this neck *k*, so that the lever *e* and its connections can be turned into a position to suit the location of the trap. This forms a simple, cheap, and very sensitive valve, which can be readily inserted in or removed from the trap, and adjusted to suit the position in which the trap may be located.

The third feature of my invention consists in the branch pipes D D, which extend vertically from the trap at the beginning or crests of the bend. These branches, while admitting of access to the interior of the trap for the removal of obstructions, also admit of the attachment of other pipes at these points, such as rain-pipes, &c. It is found by experience that this is the best point to connect the rain-pipe, as the sudden rush of the water in case of a rain-storm finds more easy escape by being thus admitted in the direction of the bend than in the usual way, where it enters at right angles to the bend.

The branches D D, when not used for the connection of other pipes, are covered with screw-caps *g g*, provided with a non-corrosive or plumbago packing, *f f*, which insures a tight joint, preventing the escape of sewer-gas, and resisting the pressure of steam often blown into the sewers.

My invention is more especially designed for large traps, usually made of cast-iron, and attached to the main waste-pipe.

What I claim as my invention is—

1. A sewer-trap provided with a gage-glass,

A, inserted in and rising from the bend of the trap, substantially as and for the purpose set forth.

2. In a sewer-trap, a vacuum-valve formed of a perforated insertible and removable cylinder, B, the lower edge of which forms the seat for the balanced valve-disk *d*, of smaller diameter than the end of the cylinder, substantially as shown and described.

3. In a sewer-trap, the combination of the valve-cylinder B, valve *d*, and lever *e* with the fulcrum-post F, rotatable on the valve-cylinder B, to render the lever, &c., adjustable to the location of the trap, substantially as herein set forth.

4. In a sewer-trap, the combination, with the vacuum-valve *d*, of the balancing-lever *e*, provided on the end of its short arm with the friction-roller *i*, which receives the contact of the valve-stem *h*, as and for the purpose set forth.

5. A trap provided with the branches D D, extending vertically from the crests of the bend, and provided with the packed screw-covers *g g*, substantially as herein set forth.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN L. KNIGHT.

Witnesses:
E. H. WALES,
CHAS. M. HIGGINS.