

Specification of Charles Denton Abel : draining sewage.

Contributors

Abel, Charles Denton.

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A.D. 1866, 12th APRIL. N° 1037.

SPECIFICATION

OF

CHARLES DENTON ABEL.

—
DRAINING SEWAGE.
—

LONDON:

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A.D. 1866, 12th APRIL. N° 1037.

Draining Sewage.

(This Invention received Provisional Protection only.)

PROVISIONAL SPECIFICATION left by Charles Denton Abel at the Office of the Commissioners of Patents, with his Petition, on the 12th April 1866.—A communication from abroad by Johann Peter Wilhelm Schmick, Civil Engineer, residing at Frankfort-on-the-Main, Germany.

I, CHARLES DENTON ABEL, of No. 20, Southampton Buildings, Chancery Lane, in the County of Middlesex, Patent Agent, do hereby declare the nature of the said Invention for "AN IMPROVED SYSTEM OF DRAINAGE FOR THE DWELLINGS OF TOWNS AND OTHER LOCALITIES, AND APPARATUS EMPLOYED IN CONNECTION THEREWITH," to be as follows:—

Although the present system of conveying the sewage matter from dwellings into the sewers and thence into the rivers of towns is doubtless far preferable, as far as the comfort and cleanliness of the dwellings is concerned, to the old system of cesspools emptied by night carts, yet it has now been sufficiently demonstrated that very great evils have arisen from the present system, which evils may almost be considered to overbalance the disadvantages of the old arrangement.

The present Invention has for its object an improved system of drainage, whereby all the advantages of the present system are retained while all the disadvantages arising from the conveying of the contents of the waterclosets into the sewers and thence into the river are done away with.

Such system consists in the arrangement of a series of pipes of moderate diameters laid entirely independent of the sewers, and in a similar manner to water pipes, a moderate depth below the surface of the ground. These

Abel's Improved System of Draining Sewage.

pipes are connected all along their length to the waterclosets or privies of houses, each of which is provided with a receptacle sufficiently large to hold the sewage matter of one day or more, and capable of being shut off from the pipes by means of a valve. The pipes are closed in an air-tight manner at one extremity by means of valves, while at the other extremity they are con- 5
nected to a suction and force pump situated by preference underground in a central position, and worked by means of a hydraulic pressure engine. By means of this pump a partial vacuum is produced in the system of pipes at a given time, either every day or at longer intervals of time, and at such time the before-mentioned valves through which the receptacles to the waterclosets 10
communicate with the pipes are opened consecutively, whereby the entire contents of each receptacle are consecutively sucked with considerable rapidity into and along the system of pipes, the small interval of time elapsing between the opening of the several valves being sufficient to allow a certain quantity of air to be sucked into the pipes between each two consecutive charges, the 15
expansive action of which air will greatly facilitate the passage of the sewage matter along the pipes. In order to maintain the partial vacuum in the pipes while the sewage matter is passing into them, the valve of one watercloset is always closed again before the next one is opened. The receptacles to each watercloset or privy are, by preference, formed with funnel-shaped bottoms, 20
and connected to outlet pipes passing vertically downwards in order to insure that the whole of the sewage matter shall pass away at each time; they are also by preference provided with a grating situated a little above such funnel-shaped bottom, the openings of which are large enough to allow all sewage matter to pass through, but which retains foreign substances, such as bones 25
or rags, which may be removed from time to time through accessible openings in the receptacles provided with covers. During the time that the sewage matter passes into the system of pipes the pumping engine is kept at work, and is thus caused to force the sewage matter as it arrives to it along a main to a large underground reservoir situated outside the town at any convenient 30
locality where the sewage matter may be used as manure, for which purpose it is pumped out of the reservoir as it is required. This reservoir is by preference provided with a chimney shaft, in which gas jets are kept continually burning in order to prevent the accumulation of noxious gases therein. The water that is employed to work the pumping engine is forced afterwards by 35
the pump into the sewage main, and thus assists in keeping the same flushed. This system which may be termed the "pneumatic drainage system" has the advantage of being equally applicable to waterclosets and to privies, no water beyond that supplied by the sewage matter being actually requisite to insure

Abel's Improved System of Draining Sewage.

its proper action, as the sewage matter, which consists of about nine parts urine to one part faeces, remains sufficiently long in the receptacles to become a uniform fluid mass, which will readily flow through the pipes.

When the town or other locality is sufficiently large it may be divided into
5 several separate districts, each of which is provided with a central underground pumping station, from which the sewage matter may be conveyed either into one and the same reservoir, or into separate reservoirs, as may be most convenient. The opening and closing of the valves to each separate dwelling, or to a group of two or more dwellings, may be conveniently effected
10 by means of gearing enclosed in an accessible recess in the wall of the house, and actuated by a crank handle carried by the attendant, who goes his rounds for this purpose, in a similar manner to the turncock who attends to the water supply. The valves may however be worked in any other suitable known manner.

15 When it is required to flush the system of pipes right through, the pumps are put in action and the valves closing the ends of the pipes are opened, and if requisite water from the water mains or from a rain water tank may be made to flow into such open ends.

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Abel's Improved System of Draining Sewage.

its proper action, as the sewage-matter, which consists of about nine parts in one to one part water, remains sufficiently long in the receptacles to become a uniform fluid mass, which will readily flow through the pipes.

When the town or other locality is sufficiently large it may be divided into several separate districts, each of which is provided with a central underground pumping station, from which the sewage matter may be conveyed either into one and the same reservoir, or into separate reservoirs, as may be most convenient. The opening and closing of the valves to each separate dwelling, or to a group of two or more dwellings, may be conveniently effected by means of gearing enclosed in an accessible recess in the wall of the house, and actuated by a crank handle carried by the attendant who goes his rounds for this purpose, in a similar manner to the turncock who attends to the water supply. The valves may however be worked in any other suitable known manner.

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