Specification of Henry Malcolm Ramsay : treating sewage.

A.D. 1873, 12th DECEMBER. N° 4092.

SPECIFICATION

OF

HENRY MALCOLM RAMSAY.

TREATING SEWAGE.

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A.D. 1873, 12*th* DECEMBER. N° 4092.

Treating Sewage.

(*This Invention received Provisional Protection only.*)

PROVISIONAL SPECIFICATION left by Henry Malcolm Ramsay at the Office of the Commissioners of Patents, with his Petition, on the 12th December 1873.

I, HENRY MALCOLM RAMSAY, of 11, Amyand Park Road, Twickenham, in the County of Middlesex, Civil Engineer, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN THE TREATMENT AND DISPOSAL OF SEWAGE," to be as follows:—

This Invention consists in an improved method for the treatment and disposal of sewage, by subsoil or underground filtration through land of any description, removal or discharge if necessary for the effluent or surplus, after such filtration and absorption, by under or subsoil draining, with power to divest and dispose of any desired quantity over the surfaces of land of any description for cultivation purposes.

In applying my Invention I provide, lay down, and construct in the soil a system or series of half pipe filter drains at such depths below or under surface as the nature of the subsoil or underground strata may in each case or locality require or determine generally. I should prefer two feet from surface levels of the land to crown of half pipe filter drains.

These drains to be laid in in parallel lines at equal distances apart or thereabouts as the contour levels of land in any locality may render most expedient for the intended purposes generally. I should prefer a distance of twelve feet from centre to centre, all at such levels or gradients as will effect by head pressure a rapid flow through drains and percolation into the filter materials in which the drains are enclosed.

The land used for purposes of distribution, filtration, and disposal of the sewage under or by the within specified half pipe filter system in any locality, is to be laid out in equal areas or thereabouts generally. I should prefer in one acre plots of 5 chains by 2 chains, the whole to be prepared for the reception of the parallel and longitudinal lines of the half pipe filter drains, by trenches being excavated therein of such widths and depths, as the nature of the subsoil may render most expedient and successful for rapid filtration or absorption results generally. I should prefer trenches three feet wide by fifteen inches in depth, in addition to the depth under the surface previously described; these trenches to be filled in with ballast, rubble, gravel stones, burnt clay, hard core, or other like coarse filtering material, as found in each locality up to the necessary levels for the reception of and bedding the half pipes thereon. Upon the lines of half pipes being so laid, the trenches are to be further filled in with similar material round and over the half pipe filter drains up to a level covering in crowns of same, and the whole filled in and finished to surface levels with the excavated material, openings being left in trenches here and there for inspection, and continual aeration of the filtering medium secured by the within specified system, a system combining intermittent downward filtration.

The whole of each set or one acre plot of drains to be charged or filled with clear sewage from time to time from a delivery conduit or conduits as the case may be, the same being supplied with clear sewage from outfall reservoirs, storage tanks, or other depôts, the raw sewage being passed through charcoal screen filters before being passed into said delivering conduit or conduits, so that all sedimental or organic matter may be removed therefrom, the delivering conduit or conduits being laid down or constructed at such levels as will secure the necessary head pressure for supply of half pipe filter drains in each plot.

The pipes to be applied and used for these purposes I design and construct in stone or redware or iron, as a half pipe with flange each side or

circular perforated pipes, all of the necessary thicknesses, regulated by the sizes used in each case or locality generally. I should prefer that the form of the pipes should be of a semi or oviform character, and perforated if necessary.

Each of the plots of one acre or thereabouts would be charged throughout its system of filter drains from delivery conduit, supplying each from time to time, as will allow or give an ascertained time or number of hours to each for the filtration or absorption of the sewage into the surrounding subsoil, and ultimate passage into and discharge from the lower system of water drains into outfall for effluent water, or otherwise as the case may be, in close soils vertical pipe shafts can be sunk from half pipe filter drains to a lower depth.

The advantages of this Invention consists in the following:—Sewage can be disposed of underground with as much facility as by surface irrigation, and further can be disposed of in time of frost, when surface disposal is impracticable, that by this system all surface nuisances and residental or local objections to sewage disposal works are entirely obviated, that any portion of the sewage flow can be used at will for surface cultivation purposes on the land by occasional dressings, and that subject to the land being above subsoil water level and suitable; this system of underground disposal of sewage can be carried on within the area of any locality.

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