Specification of Rogers Field : sewage tanks.

A.D. 1872, 11*th* NOVEMBER. N° 3348.

SPECIFICATION

OF

ROGERS FIELD.

SEWAGE TANKS.

LONDON:
PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY:
PUBLISHED AT THE GREAT SEAL PATENT OFFICE,
25, SOUTHAMPTON BUILDINGS, HOLBORN.
1873.

A.D. 1872, 11*th* NOVEMBER. N° 3348.

Sewage Tanks.

LETTERS PATENT to Rogers Field, of No. 5, Cannon Row, Westminster, in the County of Middlesex, for the Invention of "IMPROVEMENTS IN SEWAGE TANKS, AND IN THE MEANS OF EFFECTING THE INTERMITTENT DISCHARGE OF LIQUID FROM THEM OR OTHER VESSELS BY SYPHONS."

Sealed the 11th January 1873, and dated the 11th November 1872.

PROVISIONAL SPECIFICATION left by the said Rogers Field at the Office of the Commissioners of Patents, with his Petition, on the 11th November 1872.

I, ROGERS FIELD, of No. 5, Cannon Row, Westminster, in the County of Middlesex, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN SEWAGE TANKS, AND IN THE MEANS OF EFFECTING THE INTERMITTENT DISCHARGE OF LIQUID FROM THEM OR OTHER VESSELS BY SYPHONS," to be as follows:—

This Invention relates to the construction and working of vessels fitted with syphons, whereby sewage or other liquid is collected and discharged intermittently, means being provided when required of trapping the supply pipes of such vessels. For this purpose I form a vessel of iron, earthenware, or other suitable material, and when it is used for sewage I place it by preference outside the house or building

to which it is appplied. I provide this vessel with a cover which may be made moveable to give access for cleansing. This cover may have through it a trapped opening for the admission of liquid to the vessel, or the cover may be closed and the liquid may be supplied to the vessel by a trapped pipe entering it. From the upper part of the vessel a pipe may be led upwards for the escape of foul air, and may be carried into a flue. The vessel is provided with a syphon, the one limb of which has its mouth at a little distance from the bottom, leaving below it when necessary space for solid matter deposited from the liquid. A strainer may be provided to prevent solid matter from entering the syphon.

The bend of the syphon is situated a little above the inside top of the vessel, or the upper part of the vessel is formed with a contracted area, so that a small quantity of liquid entering the vessel after the level of the bend has been attained causes a considerable rise of liquid in the syphon bend. The longer limb of the syphon is carried down into a discharging trough, which may be fitted to the syphon limb in such a manner that the trough can be turned round on it as on an axis, so as to discharge the liquid in any desired direction. The mouth of the limb extends downwards to near the bottom of the discharging trough, and between this mouth and the outlet of the trough there is a rib forming a weir which rises to about the level of the mouth of the syphon. Through this weir there is a small passage which preferably is a notch cut through the upper edge of the rib, forming a narrower weir at a lower level.

Liquid flows into the vessel and is collected therein until it reaches the level of the syphon bend, and during this time solid matter may be deposited from it. An additional supply of liquid having to rise in a contracted space overflows the bend and runs down the longer limb into the discharge trough. If this additional supply be sufficient it raises the level of the liquid in the discharge trough so as to seal the mouth of the syphon, and then charges the syphon so as to bring it into action, whereby the liquid is discharged from the vessel and overflows the wider weir. If the additional supply be insufficient to fully charge the syphon it runs away over the narrower weir leaving the discharge mounth of the syphon unsealed, whereby any partial action of the syphon is stopped.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Rogers Field in the Great Seal Patent Office on the 8th May 1873.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, ROGERS FIELD, of No. 5, Cannon Row, Westminster, in the County of Middlesex, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Eleventh day of November, in the year of our Lord One thousand eight hundred and seventy-two, in the thirty-sixth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Rogers Field, Her special license that I, the said Rogers Field, my executors, administrators, and assigns, or such others as I, the said Rogers Field, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN SEWAGE TANKS, AND IN THE MEANS OF EFFECTING THE INTERMITTENT DISCHARGE OF LIQUID FROM THEM OR OTHER VESSELS BY SYPHONS," upon the condition (amongst others) that I, the said Rogers Field, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Rogers Field, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, reference being had to the accompanying Sheet of Drawings, and to the figures and letters marked thereon, that is to say :—

This Invention relates to the construction and working of vessels fitted with syphons, whereby sewage or other liquid is collected and discharged intermittently, means being provided when required of

trapping the supply pipes of such vessels. For this purpose I form a vessel of iron, earthenware, or other suitable material, and when it is used for sewage I place it by preference outside the house or building to which it is applied. I provide this vessel with a cover which may be made moveable to give access for cleansing. This cover may have through it a trapped opening for the admission of liquid to the vessel, or the cover may be closed and the liquid may be supplied to the vessel by a trapped pipe entering it. From the upper part of the vessel a pipe may be led upwards for the escape of foul air, and may be carried into a flue. The vessel is provided with a syphon, the one limb of which has its mouth at a little distance from the bottom, leaving below it when necessary space for solid matter deposited from the liquid. A strainer may be provided to prevent solid matter from entering the syphon.

The bend of the syphon is situated a little above the inside top of the vessel, or the upper part of the vessel is formed with a contracted area, so that a small quantity of liquid entering the vessel after the level of the bend has been attained causes a considerable rise of liquid in the syphon bend. The longer limb of the syphon is carried down into a discharging trough, which may be fitted to the syphon limb in such a manner that the trough can be turned round on it as on an axis, so as to discharge the liquid in any desired direction. The mouth of the limb extends downwards to near the bottom of the discharging trough, and between this mouth and the outlet of the trough there is a rib forming a weir which rises to about the level of the mouth of the syphon. Through this weir there is a small passage which preferably is a notch cut through the upper edge of the rib, forming a narrower weir at a lower level.

Liquid flows into the vessel and is collected therein until it reaches the level of the syphon bend, and during this time solid matter may be deposited from it. An additional supply of liquid having to rise in a contracted space overflows the bend and runs down the longer limb into the discharge trough. If this additional supply be sufficient it raises the level of the liquid in the discharge trough so as to seal the mouth of the syphon, and then charges the syphon so as to bring it into action, whereby the liquid is discharged from the vessel and overflows the wider weir. If the additional supply be insufficient to fully charge the syphon it runs away over the narrower weir leaving the

discharge mouth of the syphon unsealed, whereby any partial action of the syphon is stopped.

Description of the Drawings.

Fig. 1 represents a vertical section, and Fig. 2 a plan of a syphon sewage tank constructed and arranged according to this Invention, and Fig. 4 represents a vertical section of a modified arrangement of such tank.

A is the tank provided with a cover B which can be removed as occasion may require to give access for cleansing. A sink C may be fixed to or made in one piece with the cover B, and its pipe provided with a bend D to act as a trap, as shewn in Fig. 1. Or the tank may be supplied by a pipe E carried down so as to dip into the liquid at its lowest level, or by a side pipe E^1, as shewn in Fig. 4. The inlet pipes may be trapped as shewn in Figs. 1 and 4, or in any other known manner. The cover B is made to close the tank air-tight so as to prevent the escape of effluvia, and an air pipe F may be connected to the tank, by which effluvia escaping from its contents may be carried to a flue or other discharge. A perforated diaphragm G is placed within the tank to act as a strainer, preventing the larger fragments of solid matter from entering and choking the syphon H.

It will be seen by the Figures that the bend of this syphon reaches a little above the top of the tank. When the tank has been filled up to the top a small additional supply of liquid, as it can only rise in the contracted area of the pipes D, E, or E^1, and of the syphon pipe, serves to fill the latter up to its bend and overflows the same, whereby the longer limb of the syphon outside the tank becomes charged. This exterior limb enters a discharging trough K, of which a transverse section is shewn in Fig. 3. This trough is by preference made to turn round the limb of the syphon as an axis, so that its mouth may be directed as may be required for discharge, as indicated by the dotted lines K^1 in Fig. 2, and it is made with a cover which can be removed to give access for cleansing. Across the trough K is formed a weir L rising to about the level of the mouth of the syphon limb, and in this weir is cut a notch M forming a smaller weir a little below the said level. These weirs acting in combination with the elevation of the syphon bend above the top of the tank have the effect of causing

the syphon to be charged and to come into operation for emptying the tank, when after the tank has been filled a sufficient quantity of fluid runs in to fill the outer limb of the syphon, but they prevent a partial action of the syphon in the manner described above.

Having thus described the nature of my Invention, and in what manner the same is to be performed, I claim,—

First. The combination in syphon tanks of a syphon bend rising above the top of the tank, with weirs arranged at the discharging mouth of the syphon, substantially in the manner and for the purpose herein described.

Second. The construction of syphon sewage tanks with trapped supply pipes, and a strainer in combination with a syphon and discharging weirs such as are above referred to, substantially as herein described.

Third. The construction and arrangement of a discharging trough provided with weirs such as are above referred to, and capable of being turned round so as to vary the direction of discharge from syphon tanks, substantially as herein described.

In witness whereof, I the said Rogers Field, have hereunto set my hand and seal, this Sixth day of May, in the year of our Lord One thousand eight hundred and seventy-three.

ROGERS FIELD. (L.S.)

LONDON:
Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1873.

FIG. 1.

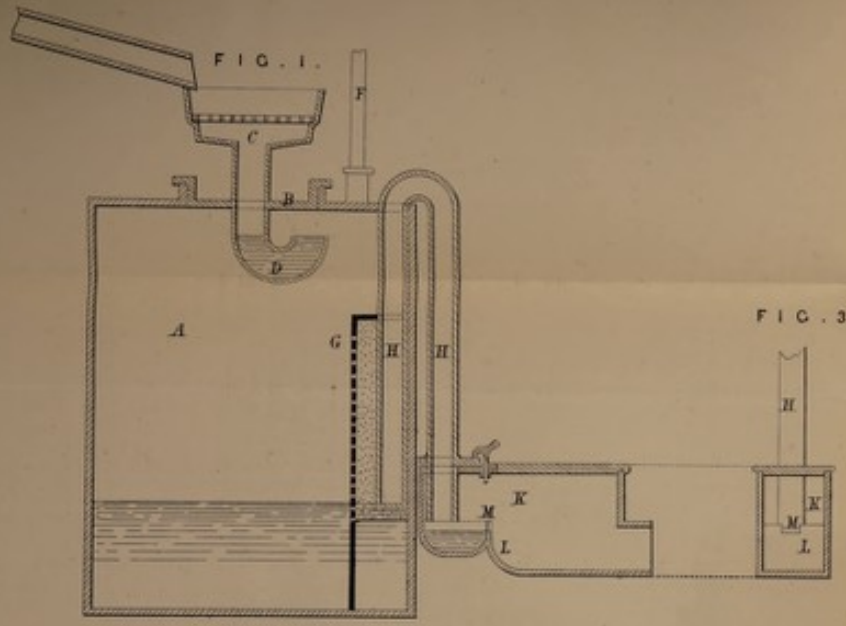


FIG. 3.

FIG. 2.

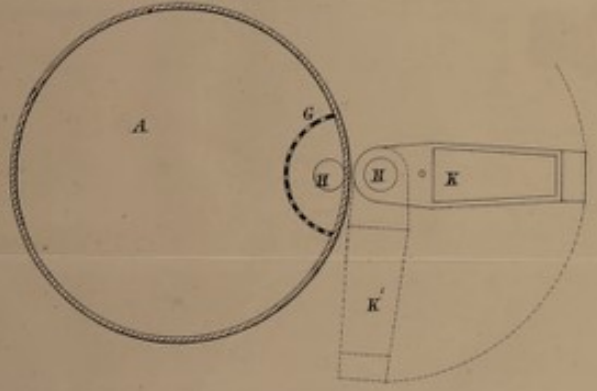
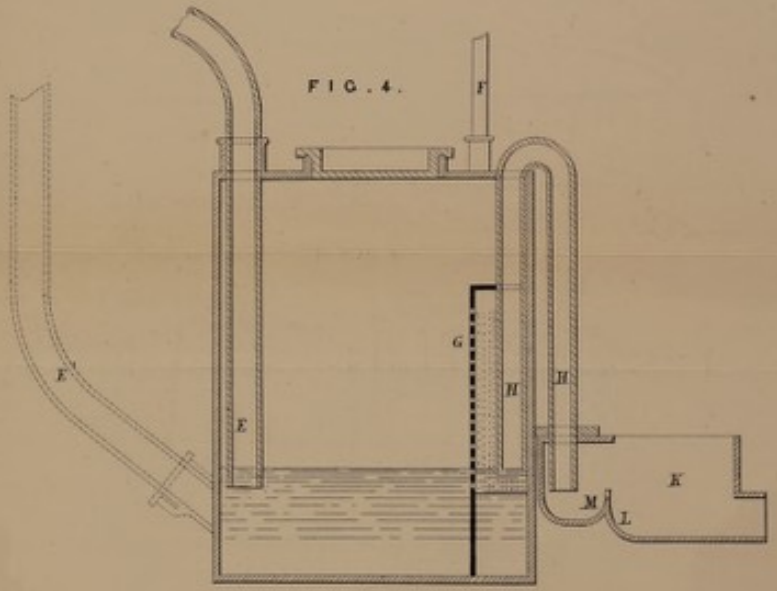


FIG. 4.



The filed drawings is not colored.

Drawn on Stone by Malby & Sons

LONDON Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE
Printers to the Queen's most Excellent Majesty 1873.