

R. FIELD.

TANKS OR VESSELS FOR THE INTERMITTENT DISCHARGE OF
SEWAGE, &c.

No. 181,569.

Fig. 1.

Patented Aug. 29, 1876.

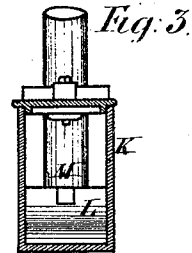
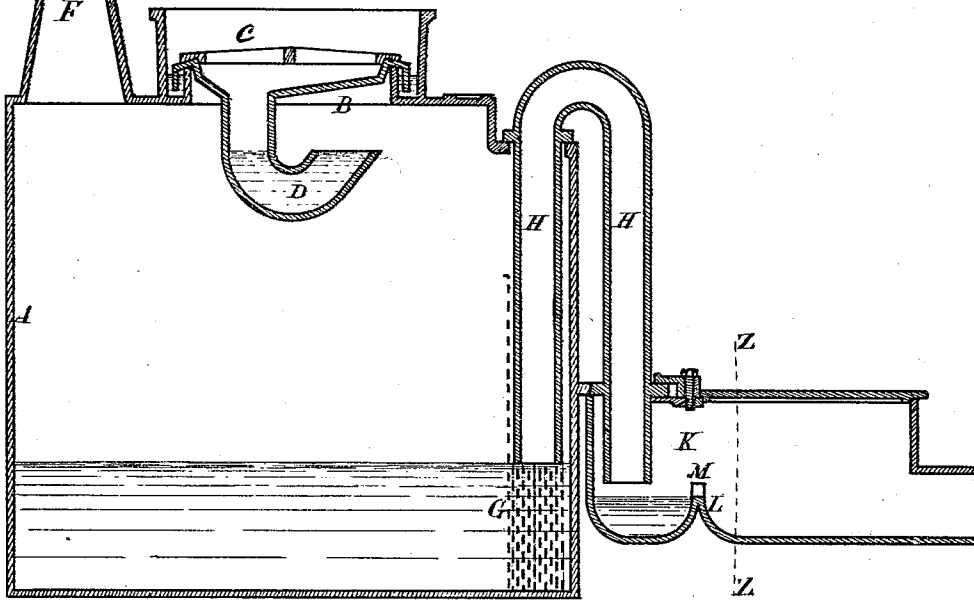
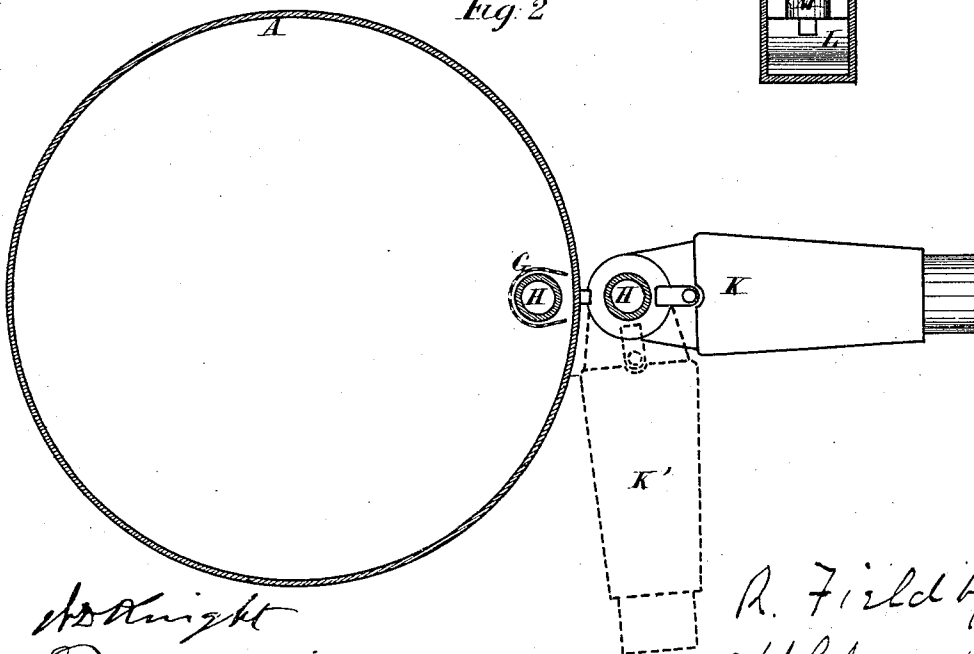


Fig. 2.



*As Knight
H. Martin*

*R. Field by
C. Whelan atty*

UNITED STATES PATENT OFFICE

ROGERS FIELD, OF WESTMINSTER, ENGLAND.

IMPROVEMENT IN TANKS OR VESSELS FOR THE INTERMITTENT DISCHARGE OF SEWAGE, &c.

Specification forming part of Letters Patent No. **181,569**, dated August 29, 1876; application filed May 6, 1876.

To all whom it may concern:

Be it known that I, ROGERS FIELD, of No. 5 Cannon Row, Westminster, in the county of Middlesex, England, have invented an Improvement in Tanks or Vessels for the Intermittent Discharge of Sewage and other Liquids; and do hereby declare that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvement, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to secure by Letters Patent—that is to say:

My invention relates to the construction and working of vessels fitted with siphons, whereby fluid 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 movable 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 upward for the escape of foul air, and may be carried into a flue. The vessel is provided with a siphon, 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 siphon.

The bend of the siphon 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 siphon-bend. The longer limb of the siphon is carried down into a discharging-trough, which may be fitted to the siphon-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 downward 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 siphon. 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 siphon-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 siphon, and then charges the siphon, 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 siphon, it runs away over the narrower weir, leaving the discharge-mouth of the siphon unsealed, whereby any partial action of the siphon is stopped.

Figure 1 represents a vertical section, and Fig. 2 a sectional plan, of a siphon sewage-tank constructed and arranged according to this invention; and Fig. 3 being a section of the discharge-trough on the line Z Z of Fig. 1.

A is a tank, provided with a trapped 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 shown in Fig. 1; or the inlet-pipe may be trapped in any other known manner. The cover B, being trapped, closes 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. This pipe also serves for the admission and emission of air as the tank empties and fills, so as to prevent the traps being emptied of liquid. A strainer, G, which may be a piece of wire-netting, surrounds the

mouth of the siphon H, so as to prevent the larger fragments of solid matter from entering and choking the siphon.

It will be seen by the figures that the bend of this siphon 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 and F and of the siphon-pipe, serves to fill the latter up to its bend and overflows the same, whereby the longer limb of the siphon outside the tank becomes charged. This exterior limb enters a discharging-trough, K, of which a transverse section is shown in Fig. 3. This trough is, by preference, made to turn round the limb of the siphon as an axis, so that its mouth may be directed as may be required for discharge, as indicated by the dotted lines K' 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 siphon-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 siphon-bend above the top of the tank, have the effect of causing the siphon 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 siphon; but they prevent a partial action of the siphon, 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—

1. The combination of tank A with the siphon H, having its bend rising above the top of the tank, and with the weirs L and M arranged at the discharging-mouth of the siphon, substantially in the manner and for the purpose herein described.

2. The combination, in a siphon sewage-tank, of the trapped supply-pipe D and strainer G, with the siphon H and discharging-weirs L and M, substantially as herein described.

3. The discharging-trough K, provided with the weirs L and M, made capable of being turned round, so as to vary the direction of discharge from the siphon-tank, substantially as herein described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses this 22d day of March, 1876.

ROGERS FIELD.

Witnesses:

JNO. P. M. MILLARD,
M. WYNN.