E. O. LAWRENCE.

CESSPOOL.

APPLICATION FILED APR. 25, 1921.

1,408,810. Patented Mar. 7, 1922.

Fig. 1.

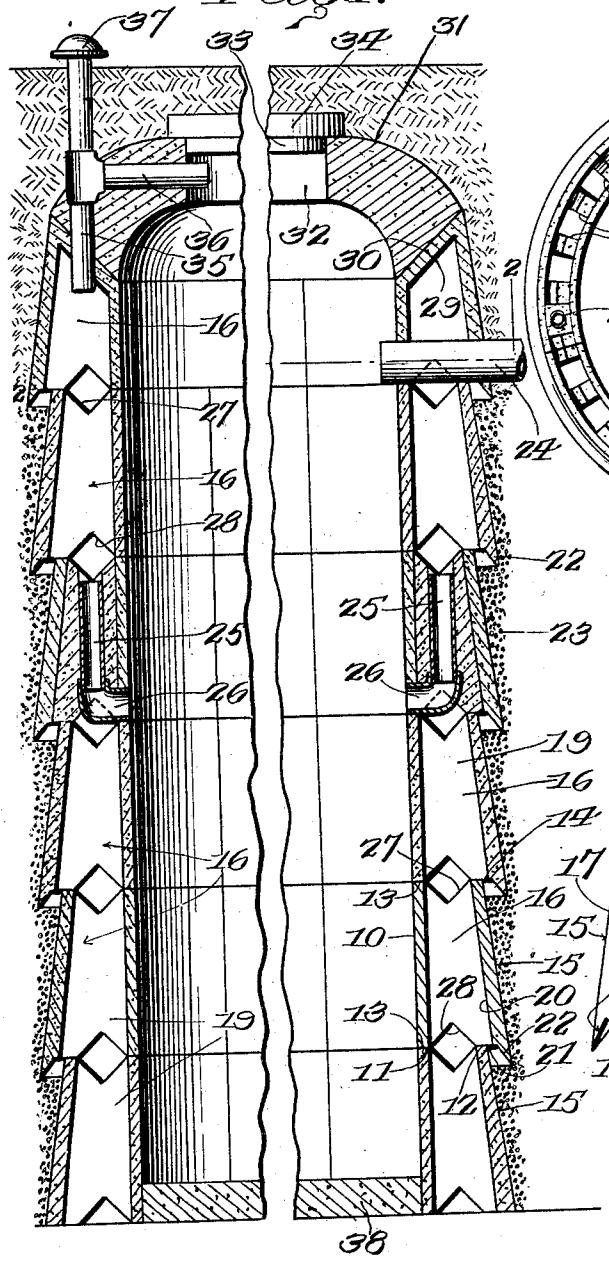


Fig. 2.

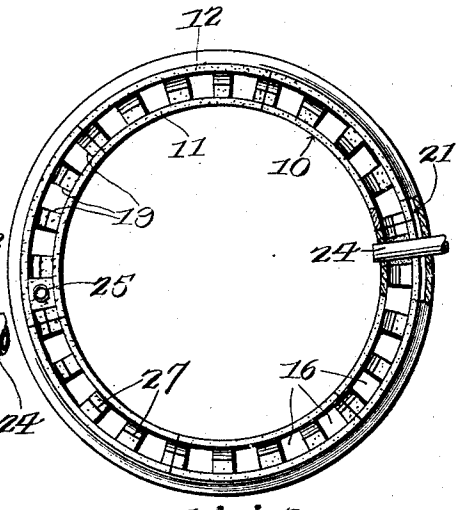
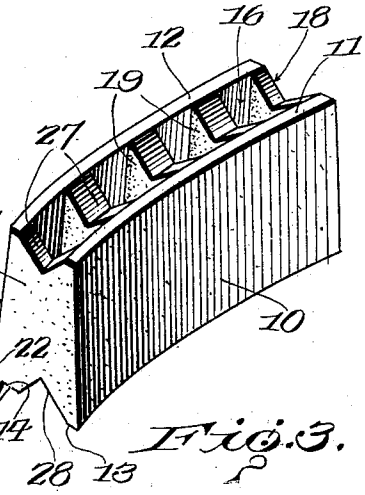


Fig. 3.



Witness

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CESSPOOL.

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To all whom it may concern:

Be it known that I, EDWIN O. LAWRENCE, a citizen of the United States, residing at Port Jefferson Station, in the county of Suffolk, State of New York, have invented certain new and useful Improvements in Cesspools; and I do hereby declare the following to be a full, clear and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to cesspools and it has for its object to provide an improved construction in which the seepage to the surrounding gravel filling will be at successive elevations although the overflow will be from a fixed elevation.

It is a further object of the invention to provide a novel arrangement that will positively prevent ingress of the surrounding medium, through the seepage openings.

Another object of the invention is to provide a particular block or brick, a suitable number of which may be readily assembled to construct a cesspool of a given diameter and of any desired height and from one to another of which blocks or bricks, there may be a ready circulation of outgoing liquid, both vertically and transversely.

In the drawings:

Figure 1 is a vertical section taken centrally through a cesspool embodying the present invention, the central portion of the structure being broken away to permit of illustration on a large scale.

Figure 2 is a section on line 2—2 of Figure 1.

Figure 3 is a detail perspective view of one of the concrete blocks or bricks.

Referring now to the drawings, there will be first described the brick from which is formed the wall of the cesspool. The brick includes an inner wall 10 that is a cylindrical section and is at right angles to the inner and outer upper edges 11 and 12 of the brick as well as to the inner and outer lower edges 13 and 14 of the brick. The outer face 15 of the brick is the arc of a cone and the curvatures of these two faces 10 and 15 are concentric. When a succession of these bricks are disposed end to end, they jointly provide a frusto-conical cesspool course, the interior of which is cylindrical, as will be seen from Figure 2 of the drawings.

Each of the bricks is provided with a series of passages 16 formed vertically through it, the endmost passages being bounded at their outer sides by the end walls 17 and 18 respectively that are flush with the end edges of the inner and outer faces 10 and 15 respectively of the brick, the passages of the brick being separated one from another by the partitions 19 that extend radially of the brick, these partitions in practice having double the thickness of the end walls 17 and 18 respectively. The passages 16 are preferably square at their upper ends but by reason of the downward flare of the outer wall, they are elongated at their lower ends radially of the brick.

In constructing the cesspool, and after the proper excavation has been made, an annular course of bricks is placed upon the bottom of the excavation and upon this course, is a second course as shown in Figure 1. The flare of the second course is such that the upper portion of the outer face 15 of each brick of the lower course, lies inwardly of the lower edges of the outer faces or walls 20 of the passages 16 of the corresponding brick or bricks of the second course. Each of the passages 16 thus has an opening 21 leading from its lower end to the upper portion of the outer face 15 of the brick below. In this arrangement, the inner lower edge 13 of each brick rests upon corresponding extents of the upper inner edges 11 of mutually adjacent bricks therebelow, the lower edges of the end walls 17 and 18 being disposed directly above the central partitions 19 of the bricks therebelow, so that the bricks of one course, break joints with those of the next course. While the bricks are set with their inner faces 10 flush, the outer wall of each brick not only overhangs the upper portion of the outer face of the brick next below, but it is provided with a depending flange 22 forming a continuation of the outer face 15 and within which is received the upper end of the brick or bricks next below, in spaced relation to them. These flanges of the bricks, which circumscribe the cesspool, prevent working through the drain openings 21, of the gravel 23 that is filled in between the wall of the cesspool and the surrounding earth and to which the cesspool drains.

An inlet pipe 24 is brought in horizontally through the lower edge portion of one of the bricks of the top course and an overflow pipe 25 is passed downwardly through registering passages 16 and has a laterally directed elbow 26 that is carried through the inner

wall of the lower edge portion of a brick, the elbow being usually located approximately halfway between the inlet pipe and the bottom of the cesspool. After placing this overflow pipe and its elbow, it is filled around with grouting, to preserve the overflow even after the pipe shall have rotted out or shall have been removed. It will of course be understood that any desired number of these overflow pipes may be employed and in the present instance, two have been illustrated.

In order that the water from the overflow pipe or pipes may pass entirely around the cesspool to the various vertically aligned passages 16, the end walls and partitions of each brick are notched at both their upper and lower ends as shown at 27 and 28 respectively, excepting for the uppermost course or tier of bricks. The wall of the cesspool is thus provided with an annular series of vertical passages and with horizontal passages at different elevations that intersect the vertical passages. It will be noted that the horizontal passages being formed partly in the lower and partly in the upper ends of the bricks, extend both above and below the drain openings 21 so that liquid may flow readily over the outer upper edges 12 of the bricks to and through the drain openings.

The bricks are all duplicates of one another, excepting those used in building the top course and these bricks are modified to the extent of having their passages closed as shown at 29 and their inner walls of lesser heights than their outer walls to provide the slanting faces 30 that result in a conical upper end opening in which is seated a correspondingly formed and arched top member 31. This top or cap member 31 has a central opening 32 in which is engaged a closure 33 that has a circumscribing flange 34 that rests upon the cap member and seals its opening 32.

A ventilator pipe 35 is carried down through the cap 31 and into a passage 16 and has a branch 36 that extends horizontally into the opening 32. The pipe 35 extends above the ground level as illustrated and is provided with a guard cap 37.

The bottom of the enclosure of the cesspool is provided with a concrete floor 38.

The operation of this cesspool will of course be apparent to those skilled in the art. The solid matter that enters through the pipe 24, sedimentates and liquid accumulates to the height of the upper ends of the overflow pipes 25 and passes from them to the passages at either side and down to the bottom course of bricks, flowing through the lowermost horizontal passage to the various vertical passages, in which latter it rises, and then passes over the outer edge 12 and through the outlet openings 21 to the surrounding mass of gravel or similar material. Where the contribution of liquid is at a rate greater than will be carried off through the lowermost outlets and the adjacent gravel, the liquid rises in the vertical passages to the horizontal passages thereabove successively and to the corresponding outlets, which increase the discharge capacity of the cesspool.

It will be noted that the inlet pipe 24 discharges almost at the level of liquid within the cesspool, which level is at the height of the upper ends of the pipes 25 which are at the heights of the bottoms of the notches of the upper ends of the corresponding bricks. Now the liquid being taken from the cesspool approximately midway between its bottom and the level of liquid in the cesspool, there is carried with it neither the sediment that has gravitated to the bottom of the cesspool, nor the greases, that float on the liquid. The sediment thus remains to be acted upon by bacteria while the greases are prevented from passing to the gravel 23 and the surrounding earth so that the efficiency of drainage through the gravel and earth does not deteriorate. It is of course understood that the liquid level is maintained by providing the interior of the cesspool with a facing of cement to prevent seepage through the wall.

It will be understood that the drop of liquid from the inlet pipe to the level within the cesspool, which in practice is only one inch, prevents stirring up and the carrying of the greases by the inrushing liquid, to a depth sufficient to enter the elbows 26.

It will furthermore be noted that the vent pipe 35 leading into the wall of the cesspool, supplies air to the bacteria in the liquid, while the branch 36 permits of escape of gases from the interior of the cesspool.

The air that enters the hollow wall, affects not only the liquid within the hollow wall, but also serves to permit of drainage from the hollow wall and of seepage through the surrounding medium.

What is claimed is:

1. A cesspool comprising superimposed courses having vertical passages through its wall and horizontal passages intersecting them, and outlets from the vertical passages at the levels of the horizontal passages, each course having a depending flange circumscribing and spaced from the upper portion of the course next below.

2. A cesspool comprising superimposed courses having vertical passages through its wall and horizontal passages intersecting them and outlets from the vertical passages at the levels of the horizontal passages, and an overflow extending from the interior of the cesspool upwardly through its wall and communicating at its upper end with a horizontal passage.

3. A cesspool comprising superimposed courses having vertical passages through its

wall and horizontal passages intersecting them and outlets from the vertical passages at the levels of the horizontal passages, an overflow extending from the interior of the cesspool upwardly through its wall and communicating at its upper end with a horizontal passage, and an inlet above the overflow.

4. A cesspool comprising a plurality of superimposed courses, each course having end walls and partitions parallel therewith, the partitions and end walls having their upper and lower edges provided with registering notches respectively, with resultant vertical and horizontal intersecting passages through the wall of the cesspool.

In testimony whereof, I affix my signature.

EDWIN O. LAWRENCE.