May 5, 1953 L. K. BENEDICT 2,637,170

DRAIN FOR SEWAGE DISPOSAL SYSTEMS

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Fig. 1.

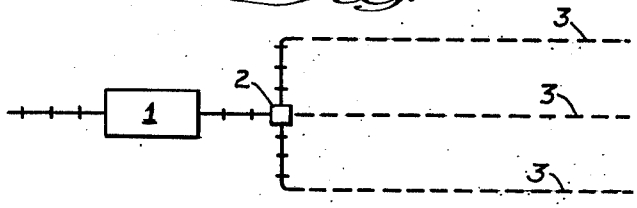


Fig. 2.

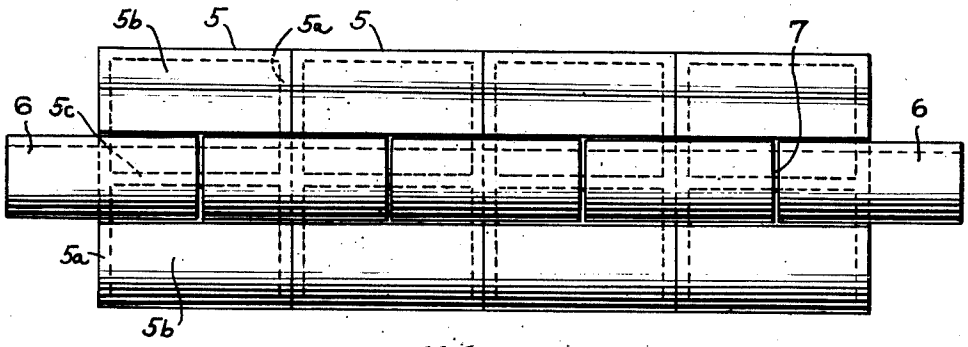


Fig. 3.

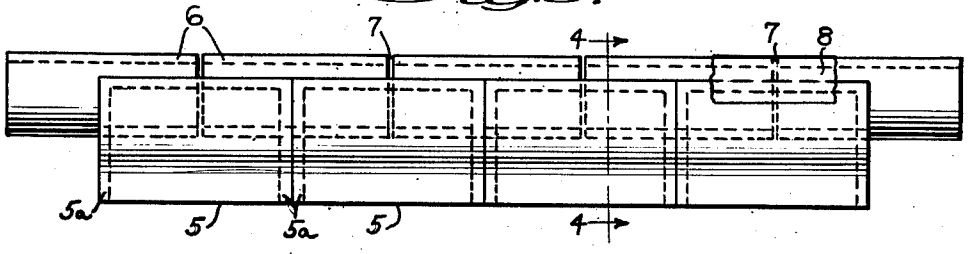


Fig. 4.

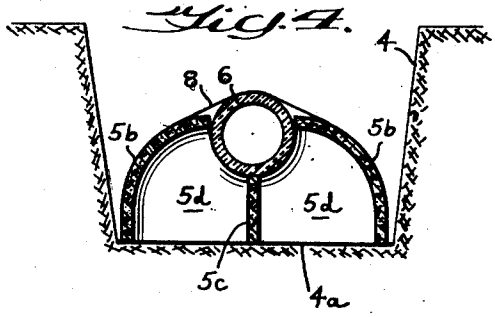
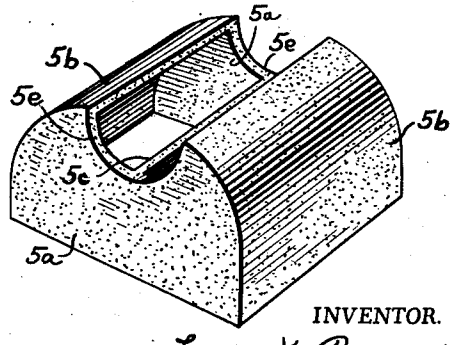


Fig. 5.



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DRAIN FOR SEWAGE DISPOSAL SYSTEMS

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3 Claims. (Cl. 61—11)

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The present invention relates to drainage systems for disposal of effluent water from septic tanks and the like and has particular reference to an improved construction for the drain or purification field into which overflow water from the septic tank is carried.

In the conventional sewerage disposal system of the septic tank type, overflow water from the tank is delivered via a distribution box to a plurality of underground and divergently extending drain lines. Each drain line is so constructed that the water flowing through the same is distributed from the line to the drain bed for seepage into the ground in a substantially uniform manner over the entire length of the line.

Prior to this invention, the most common construction for these drain lines comprised a trench extending in the desired direction with a bed of cinders or gravel at the bottom on which was directly laid in end-to-end relation a line of hollow, cylindrical drain tiles. A short space of the order of ¼'' left between the ends of adjacent tiles provided escape openings for the liquid from the underhalf of the line, and tar paper half-collars were placed in bridging relation over the upper halves of adjacent tile ends prior to back-filling the trench first with a layer of relatively finer cinders followed by earth fill until level with the original grade.

So long as the costs of cinders and gravel remain low, the initial installation cost of the foregoing construction has been correspondingly low; likewise, the cost of replacement when the line becomes filled with sludge has also been comparatively low notwithstanding the fact that all gravel and cinders must be replaced by new material. From an operational point of view, the installation has been generally satisfactory although there obviously is an everpresent danger of clogging in the liquid discharge gaps between adjacent tile ends by infiltration of dirt thereby preventing free flow of water through them and even distribution of the discharged water over the entire length of the line.

The object of the present invention is to provide a new type of construction for drain field lines that costwise is competitive with the prior gravel-cinder bed construction discussed above and moreover has superior operating characteristics in that it is virtually impossible to clog. Replacement cost is also low involving labor only since all material not damaged can be reused.

A more specific object is to provide a drain field line constituted by a plurality of hollow drain tiles laid in end-to-end relation and supported throughout their entire length upon hollow blocks cast from concrete or like material and likewise laid in end-to-end relation, the hollow spaces in the blocks forming non-communicating chambers for receiving water discharged from the gap between adjacent tile ends.

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Yet another object is to provide a novel hollow block for supporting drain tile.

The foregoing as well as other objects and advantages inherent in the invention will become more apparent from the following description of a preferred construction and the accompanying drawings in which:

Fig. 1 is a diagrammatic illustration of a typical sewerage disposal system.

Figs. 2 and 3 are views in top plan and side elevation respectively of my improved construction for one of the drain lines of the purification field;

Fig. 4 is a transverse section on line 4—4 of Fig. 3; and

Fig. 5 is a view in perspective of one of the tile supporting blocks.

Referring now to the drawings, a typical disposal system includes a septic tank 1, a distribution box 2 receiving the effluent water from the tank and a plurality of rather widely separated drain lines 3 sloping away from box 2 that divide the outflow from the box and convey the same away for seepage into the drain field.

The improved drain line according to this invention, and which is installed along the bottom of a trench 4 having the desired slope away from the box 2 is seen to be comprised of a plurality of hollow blocks 5 laid in end-to-end relation along the trench floor 4*a*. While the blocks may be made of any suitable material I prefer to make them of precast concrete using conventional concrete block machinery. Each block is constituted by imperforate end walls 5*a*, outer imperforate walls 5*b* interconnecting the end walls, the upper portions of the combined top and side walls 5*b* being curved convexly inward in a direction parallel to the end walls, and an inner, imperforate central wall or rib 5*c* extending parallel with and intermediate of the combined top and side walls 5*b* that divides the hollow interior of the block longitudinally into two chambers 5*d*. The end walls 5*a* are provided with transversely extending arcuate recesses 5*e* at the top to receive and support standard sized hollow drain tiles 6 which for example may be 4'' in diameter and a length slightly less than that of the blocks 5. The top of rib 5*c* lies flush with the lowermost point of the arcuate recess

5e and hence the tiles will be supported throughout their entire length in saddles formed by the ribs and end walls and also maintained in axial alignment.

When installing the line, the blocks 5 are first put in place with the end walls 5a of adjacent blocks as close together as possible. The drain tiles 6 are next put in place on the blocks and in such manner that the ¼'' or so gap left between the ends of adjacent tiles occurs midway along each block. Thus water discharged from the line of tiles through any particular gap 7 flows into the chambered portions 5d of the block associated therewith and no other. The chambered portions 5d are open at the bottom and hence the water seeps directly therefrom into the ground. The end walls 5a being imperforate also function as dikes to prevent the water from flowing from one chamber to the next, etc., down the entire length of the drain line thus assuring a more even seepage into the ground along the entire length of the drain line.

After the tiles 6 have been installed, a continuous cap 8 of tar paper or the like is then placed over the same to bridge and seal the gaps between adjacent tile ends against entry of dirt from the back-fill. The walls of the tile and block are finished to a comparatively smooth surface thus affording a close longitudinal fit between the two and preventing dirt from the back fill from getting into the chambered portions of the blocks.

In conclusion it is to be understood that while the illustrated embodiment is to be preferred, various changes in the construction of the block unit may be made without however departing from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. A hollow block for supporting drain tile, said block being open at the bottom and including a saddle for said drain tile extending longitudinally thereof at the top formed by aligned recesses in imperforate end walls of said block, a rib extending longitudinally between said end walls and in central alignment with said recesses, said rib dividing the block interior into a pair of chambers for receiving the discharge from said tile and adapted to engage the tile throughout its length to form a continuous longitudinal support therefor, and combined top and side walls interconnecting said end walls, the upper portions of said combined top and side walls being curved convexly inward and shaped to conform to the shape of the end walls.

2. A hollow block as defined in claim 1 wherein said combined top and side walls are likewise imperforate.

3. A hollow block for supporting drain tile, and comprising imperforate end walls and top and side walls connecting said end walls, said block being open at the bottom and including a saddle for said drain tile extending longitudinally thereof at the top of said block, said saddle being formed by aligned concave recesses in the imperforate end walls of said block and a rib extending from end wall to end wall longitudinally and centrally of the block and aligned with the centers of the recesses, said rib being integral with and supported by said end walls with its upper face lying in the plane of the bottoms of the recesses to adapt the rib and the recesses to complementally engage and support the drain tile, the upper portions of the top and side walls terminating in inwardly directed portions which terminate in alignment with the outer sides of the concave recesses of said end walls at the top of said recesses.

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