A. E. BEALL.

DRAINAGE TILE.

APPLICATION FILED AUG. 26, 1912.

1,210,885. Patented Jan. 2, 1917.

Fig. 1

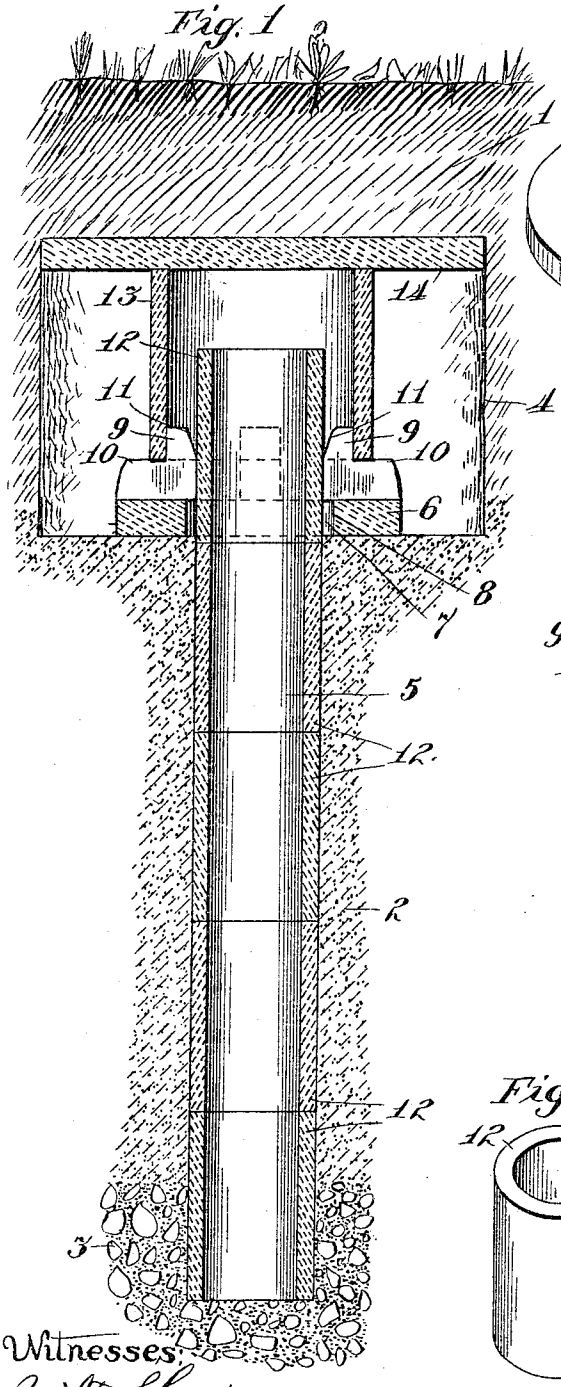


Fig. 2.

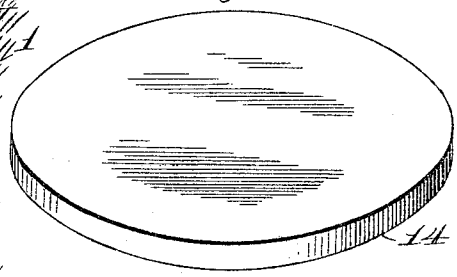


Fig. 3.

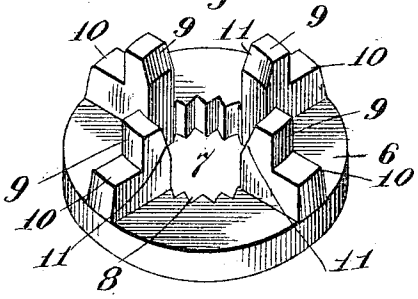


Fig 4

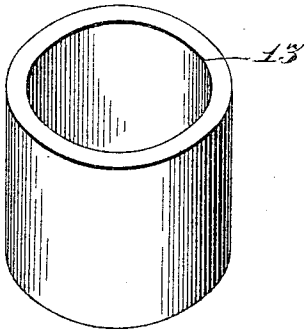


Fig. 5

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UNITED STATES PATENT OFFICE.

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DRAINAGE-TILE.

1,210,885. Specification of Letters Patent. Patented Jan. 2, 1917.

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To all whom it may concern:

Be it known that I, ALBERT E. BEALL, a citizen of the United States, residing at Clinton, county of Clinton, State of Iowa, have invented new and useful Improvements in Drainage-Tiles, of which the following is a specification.

It is the object of the present invention to provide means for draining water from land through vertically arranged tiles which lead through the underlying stratum of clay, or the like, to a porous stratum of gravel through which the water can run off.

More particularly, the object of the present invention is to protect such vertically disposed tile from stoppage due to sediment and the like carried by the water, and also to protect the tile from breakage when live stock or heavy farm implements pass over the soil under which the tile is arranged.

The details of my invention will be better understood from the following description, which is to be taken in connection with the accompanying drawings wherein—

Figure 1 is a sectional elevation of an embodiment of the present invention, installed in the soil. Fig. 2 is a detail of the large disk or cover which surmounts the structure. Fig. 3 is a perspective detail of the foundation plate whereon the heavier parts of the system are carried. Figs. 4 and 5 are details of the concentric tubular members between which the water passes in gaining access to the vertical tiling.

Fig. 1 represents somewhat diagrammatically a vertical section of a field showing the earth layer 1 which is to be drained with its underlying clay stratum 2, through which the water cannot readily percolate and under which clay is a porous stratum 3 of gravel, shale, or the like, through which water can readily pass off as an underground flow. To prepare the field for the tile a round hole is dug approximately three feet in diameter and of convenient depth, and at the center of this there is sunk a well slightly more than eight inches in diameter and of a depth sufficient to tap the gravel stratum below. It will be understood that the above mentioned dimensions are typical and illustrative. Tiling of the usual construction, preferably somewhat porous and made from concrete, or from clay if desired, is lowered into the well with the several sections 5 placed one above another to form a continuous tube. Tiling suitable for this purpose usually comes in lengths of about twelve inches. Preferably, the tile tube thus constructed terminates substantially flush with the bottom of the three foot opening or well 4.

As an essential feature of the modification herein illustrated, I employ a base plate or foundation member of the general construction illustrated in detail in Fig. 3. This member is in the form of a disk 6 having a central opening 7 with serrated edges 8 and carrying on its upper face a plurality of lugs 9, each of which has an outer shoulder 10 and is beveled off at the upper corner 11. This entire structure is preferably constructed of concrete, integral throughout and somewhat massive in design. When in use the foundation member 6 of Fig. 3 is placed flat on the bottom of the chamber 4 and in alinement with the tile members 5 so that when an upper or surmounting tile member 12 is slipped into place it is guided and supported against lateral displacement by the upstanding lugs 9 of the foundation member. Concentric with the tile 12 is an outer housing member 13 (Fig. 4) of tubular shape, which rests on the shoulders 10 and is supported by the foundation plate wholly independent of the column of tiling which leads down to the gravel. This housing member 13 is surmounted by a disk 14 (Fig. 2), preferably of a diameter equal to that of the chamber 4 and serving as a removable cover and shield for the tubular members 12 and 13.

After the several elements have been installed as above described, the earth above is filled in and used for agricultural purposes. All of the several parts of this tiling structure may be of concrete or of baked clay preferably porous in structure.

Surface water, percolating through the soil layer 1, will reach the chamber 4 and, by passage through the walls of the housing member 13 and under the lower edge thereof, will percolate through the tubular member 12 and also will, on occasions, flow over the top thereof descending through the tiling 5 to the gravel layer 3, thereby keeping the soil sweet and in good condition. The chamber 4 acts as a settling basin to accumulate such matter as may have been carried along by the water during its downward progress through the soil, and thereby acts

to shield the tiling 5 from accumulations which otherwise might clog the tiling just at those seasons of the year when the need for it is most urgent. In case of small water flow, the water can pass down between the serrated edges 8 of the foundation plate and the adjacent outer wall 12 and then by passing through the porous wall will reach the inside of the tiling without passing over its top edge.

Inasmuch as the foundation plate 6 is supported directly by the earth and is free to move up and down with respect to the tiling members 5, any undue pressure on the cover disk 14, as when heavy agricultural implements pass over the soil above, will not be transmitted to the tile column, and will produce nothing more serious than a slight yielding or displacement of the foundation member 6. By thus making the earth bear the shock and burden from above, the tile column is in large measure protected from accidental breakage.

I am aware that the proportions and details of the several elements may be varied in many ways without departing from the spirit of my invention as defined by the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. In a tiling system, the combination of a vertically disposed tubular member, a foundation member encircling said tubular member and separable therefrom, a housing member carried by said foundation member, and a cover for said housing member.

2. In a tiling system, the combination of a tubular member leading from a water chamber to a porous stratum below, a foundation member resting on the bottom of said chamber, a housing member inclosing the upper end of said tubular member to form a water trap with water passages between said foundation member and said housing member, and a closure for the top of said housing member.

3. In a tiling system, the combination of a tubular member leading from a chamber to a porous stratum beneath, the upper end of said tubular member projecting substantially above the bottom of said chamber, a foundation member resting on the bottom of said chamber and having upstanding lugs, and a housing member resting on the lugs of said foundation member and spaced from said tubular member to form a water trap from which the water from said chamber may overflow into the tubular member and thence into the porous stratum below.

4. In a drainage system, the combination of a tubular member composed of tile sections arranged vertically one above the other, the upper end of said member projecting a substantial distance into a water chamber, a foundation member encircling the upper portion of said tubular member and having serrated inner edges forming water passages about said tubular member, said foundation member carrying upstanding lugs with shoulders, said lugs serving to support the upper section of said vertical member, a housing member anchored by said lugs and supported on said shoulders and a flat disk resting on the upper edge of said housing member and forming a closure therefor, said disk also serving as a top for said chamber.

5. In a device of the character described, a drain sunk in the ground down to porous earth, a sustaining member surrounding said drain and resting on the ground, a hollow column around the upper end of the drain and on the base of the sustaining member, and a cover over the column and extending beyond the outer edge of the sustaining member.

6. In a device of the character described, a sustaining member sunk in the ground, a drain through the sustaining member and extending down to water receiving earth, a hollow column set on the sustaining member and surrounding the drain above the sustaining member, and a cover over the sustaining member and resting upon the column.

In witness whereof, I hereunto subscribe my name to this specification in the presence of two witnesses.

ALBERT E. BEALL.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."