

A. E. BEALL.
DRAINAGE SYSTEM.

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1,060,737.

Patented May 6, 1913.

Fig. 1.

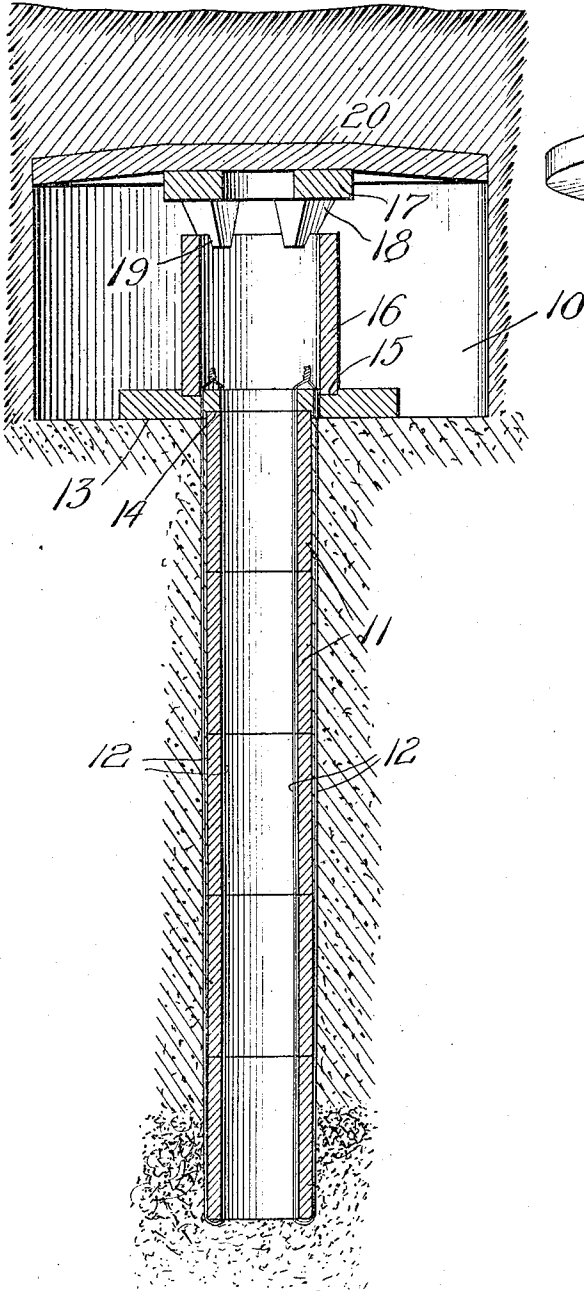


Fig. 2.

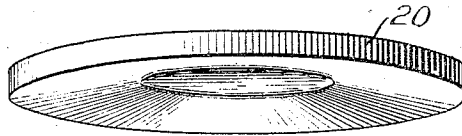


Fig. 3.

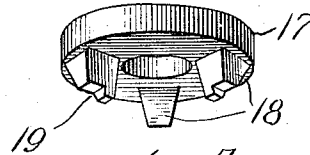


Fig. 4.

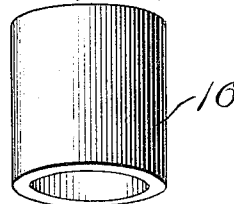


Fig. 5.

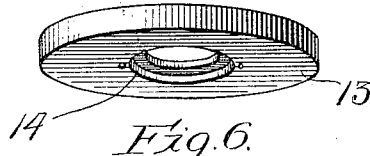
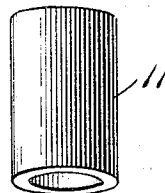


Fig. 6.



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UNITED STATES PATENT OFFICE.

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DRAINAGE SYSTEM.

1,060,737.

Specification of Letters Patent.

Patented May 6, 1913.

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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, and State of Iowa, have invented new and useful Improvements in Drainage Systems, of which the following is a specification.

In some parts of the country water is held in the soil near the surface because it cannot escape through the underlying layer of clay or similar moisture repelling material. If it happens that a gravel layer or stratum underlies the clay within a reasonable distance, it is possible to bore down through the clay into the gravel and thereby drain off the water which would otherwise be distributed through the soil near the surface. To do this in an efficient manner under ordinary working conditions, it is necessary to keep the bored hole from collapsing or filling up and special precautions must be taken to keep the passage open so that in all seasons and under all conditions there may be a ready exit of the surface water into the lower gravel or porous stratum.

The present invention relates to devices for draining land by leading the water from the surface stratum through a moisture repelling stratum or strata into an underlying porous stratum through which the water can pass off.

It is the object of the present invention to provide a structure, most of the parts of which are readily obtainable by a farmer, the construction being so simple that it may be easily and rapidly assembled and installed all at small expense and yet with a certainty that when in place, the structure will provide for leading off the water to the underlying stratum without danger that the passage will become clogged or that the structure will become broken or displaced through changes in weather or accidental disturbances from above.

With these and other objects in view, the structure is composed in large part of ordinary porous tile, there being only three additional members necessary to build up the structure as a whole. All the parts are

suitably anchored together and the construction is such that the tile will not sink into the ground or be displaced even in case it must handle large quantities of water and furthermore it provides means for allowing the water to precipitate its suspended matter before entering the drain, thereby eliminating in large measure the danger of clogging the passage.

The invention will be better understood from the detail description of the accompanying drawings in which—

Figure 1 is an elevation of an embodiment of the invention indicating somewhat diagrammatically its position in the soil. Fig. 2 is a perspective detail of the large covering disk. Fig. 3 is a perspective detail of the crown which serves to support the disk. Fig. 4 shows the tubular member used to support the crown. Fig. 5 shows the platform whereby the structure as a whole receives support from the soil, and Fig. 6 shows the topmost of the tile members forming the continuous depending tube of the structure.

When using the present invention, a hole is dug to form a water receiving chamber 10 which may be several feet in diameter and sunk to a depth below the frost line. This chamber is to serve as a reservoir or settling tank for the water seeping in from the surrounding soil preparatory to withdrawal of that water through the drain. Near the center of this chamber 10 is sunk an opening or well deep enough to strike the gravel or other porous stratum through which the water can be drained off. Into this well a series of ordinary tile sections 11 are lowered these being placed one on top of the other and preferably fastened together by support wires 12 which serve as slings whereby the tile may be lowered into the gravel. After this tube is in position, there is fitted to its upper end a heavy disk 13 recessed at 14 to receive the upper tile section and strong enough to serve as a supporting platform to which the tile may be secured by the wires 12 and by which the entire column of tile may receive support from the floor or bottom of the chamber 10. This is

of importance for the reason that water washing through and about the walls of the tile 11 may carry away the surrounding earth in places producing a tendency to settle which might otherwise disturb the position of the parts within chamber 10 and so interrupt the passage through which the water must be conveyed away. The upper face of this circular disk or platform 13 is provided with an annular groove 15 to receive and anchor the lower end of the tubular member 16. This tubular member 16 is preferably nothing more than an ordinary tile of a diameter somewhat larger than tile 11. It may therefore be purchased in the open market and need not be specially provided or shipped to the farmer. Surmounting this tile section 16 is a crown 17 of circular outline having depending lugs 18 notched at 19 to fit over and rest on the upper edge of tile 16. These lugs are spaced far enough apart to permit the passage of water over the top edge of tile 16. A cover 20 which may be in the form of a disk, and relatively heavy, rests on and is supported by crown 17 and serves as a roof for chamber 10 and also by its weight holds the parts 17, 16 and 13 in firm engagement with one another. By making the cover somewhat concave or dished, lateral displacement is prevented and additional security is insured. After the parts have been assembled as above described, the earth may be filled in over the disk 20 to a depth of two or three feet and the soil above may be tilled from year to year without any disturbance to the drainage system beneath and without danger of a cave-in under normal conditions.

The tile members 11 and 16 may be ordinary porous tile and the platform 13 and crown 17 and cover 20 may be of concrete or other strong and rigid material and when shipped to the user will allow him to build up the entire structure merely by the addition of the necessary tile 11 and 16.

When water seeps through into chamber 10 from the surrounding soil it cannot spill over into the outlet until the level of water has risen to the upper edge of tile 16. In other words, there is a retardation in chamber 10 giving ample opportunity for sediment to settle within that chamber so that water delivered over tile 16 is in large measure purified and in condition to run off freely through the gravel stratum. If for any reason it should become desirable to open up chamber 10 as for removal of the collected sediment, this may be done very readily without disturbing the column of tile 11 it being only necessary to dig down to the cover 20 and lift it out together with the crown 17 and the tube 16 whereupon the entire chamber 10 can be cleaned out without in any way disturbing the supporting plat-

form 13 and the column of tile suspended therefrom.

While I have herein shown and described only one embodiment of my invention, it is to be understood that various changes and modifications may be made by those skilled in the art without departing from the scope of my invention as defined in the appended claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a drainage system, the combination of a main drain composed of tile sections positioned one on top of the other, a platform positioned above the topmost of said tiles, an opening through said platform concentric with the passage through said tiles, a tubular member positioned on said platform, a crown member positioned on said tubular member and having openings around its periphery through which the water overflows to the main drain, and a cover positioned on top of said crown member.

2. In a drainage system, a main drain composed of tile sections positioned one above the other, a supporting member located on the topmost tile section to prevent the tiles from sinking, a tubular member disposed on said platform, and a crown member on top of said tubular member having openings through which the water will overflow into the main drain.

3. In a drainage system, the combination of a main drain, a supporting means above said main drain to prevent sinking of the drain, a tubular member disposed on said supporting means, and a crown member located on top of said tubular member and having openings around its periphery through which the water may overflow into the main drain.

4. A drain head composed of a platform, a length of tile seated on said platform, a crown member on said tile and having openings around its periphery through which the water may overflow into the tile, and a cover supported by said crown.

5. A drain head composed of a platform having a central opening, a groove around the upper side of said central opening, a tubular member seated in said groove, and a crown member located on top of said tubular member, said crown member having lugs on its lower side with spaces between them through which the water may pass, and notches on the outer side of said lugs to engage the upper edge of said tubular member, and a wide cover over said crown.

6. In a drainage system, the combination of a main drain composed of tile sections, a platform located on the topmost tile, said platform having a central opening and a groove around said central opening on its

lower side to engage the upper edge of said
topmost tile, a tubular member disposed on
said platform, a crown member located on
top of said tubular member having openings
5 around its periphery through which the
water may overflow into the main drain, and
a cover over said crown.

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

ALBERT E. BEALL.

Witnesses:

D. HOLLOWELL,

JOSEPHINE REHMANN.

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