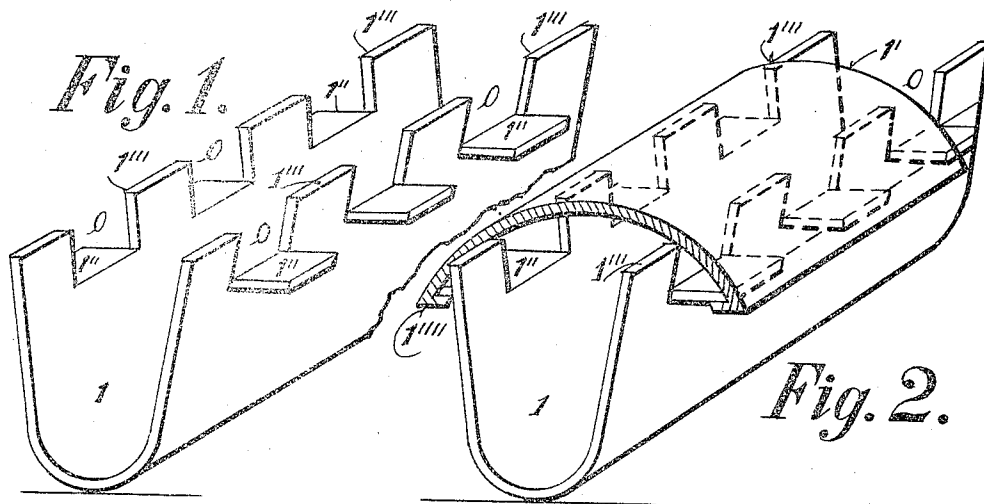


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DRAINAGE, IRRIGATION, AND AERATION DEVICE.
APPLICATION FILED DEC. 29, 1910.

1,052,226.

Patented Feb. 4, 1913.



Witnesses.

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DRAINAGE, IRRIGATION, AND AERATION DEVICE.

1,052,226.

Specification of Letters Patent.

Patented Feb. 4, 1913.

Application filed December 29, 1910. Serial No. 599,945.

To all whom it may concern:

Be it known that I, WILLIAM DAVIS DOUGLAS, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and useful Drainage, Irrigation, and Aeration Device, of which the following is a specification.

My invention relates to improvements in devices to be installed and employed underground to drain and irrigate farm lands in general, and it consists in certain peculiarities of the construction, novel arrangements, operation, and combination of its various parts, as will be hereinafter more fully set forth and specifically claimed.

The primary object of my improvement is to provide means to facilitate drainage and irrigation of the subsoil and to insure its permanent aeration in order that atmospheric air may be allowed to continuously permeate and effect the chemical changes in the soil necessary for the growth of plants.

Other objects and advantages of the invention will be explained in the subjoined description and explanation.

In order to enable others skilled in the art to which my invention pertains, to make and use the same, I will now proceed to describe it, referring to the accompanying drawing, in which:—

Figure 1 is a view in perspective of a semi-tube forming the channel; and Fig. 2 is a view in perspective of a semi-tube forming the cover for the channel which is also shown, thereunder, the cover being represented as transparent.

As shown in Figs. 1 and 2 of the drawing, this invention consists of a sectional conduit comprising a channel piece and a separable cover therefor. The channel 1 has a number of ledges 1'' formed in alignment on the outside of its walls, longitudinally, and above these ledges voids or openings 0 are provided for in the channel walls. The cover 1' overlaps the channel walls from which it is spaced laterally by the channel ledges, and the longitudinal edges 1''' of the cover, which may be flanged outwardly so as to rest partly on the channel ledges, are in any case re-turned inwardly so as to engage the edges of said ledges which slide therein. Furthermore, the cover may be partly supported on the top edges 1''' of the channel and is designed to shield the openings 0 from fall-

ing earth. Any length or any number of lengths of this conduit, which are made either straight or curved in any direction, may be used together and the whole rendered rigid by breaking joints effected by locating the meeting ends of the channel pieces under the middle of the cover pieces.

In the construction of the conduit described I may use any durable metal or material as iron and plain or reinforced concrete and the like, and without departing from the spirit of the invention, I may modify the form of its parts or vary their proportions and strengthen same as occasion demands. For instance, I may construct the channel and cover of corrugated iron to combine lightness with strength, or, when greater solidity is desirable a more durable non-pliable material, as concrete, is used in their construction.

In laying the conduits in place in trenches prepared for them economy of labor is obtained, and alinement retained, by breaking joints when assembling the cover and channel pieces, as a number of connected lengths can thus be lowered into position therein at one and the same time, and less labor or care is necessary in grading the trenches. Any suitable means extant may be used to connect air and water with the conduit underground.

By reference to the drawings it will be clearly seen and readily understood that drainage of soil about the conduit will be assured as pressure will cause the water to rise under the cover 1' and flow into the channel through its protected openings 0 as long as water in the soil is higher than said openings, that irrigation of the soil from below is facilitated by simply stopping the lower ends of the channels and filling same with water which will seep through the openings referred to and moisten the upper soil by capillarity, and that while the processes mentioned are not in operation, atmospheric air circulating in the conduit must permeate the soil via the aforesaid openings 0.

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

1. A sectional conduit comprising two separable semi-tubes arranged with their concavities confronting, one of said semi-tubes constituting the channel having outwardly extending ledges formed in aline-

ment longitudinally on the outside of its walls and voids therein above said ledges, and the other semi-tube forming the channel cover having its longitudinal edges inwardly turned so as to engage the outer edges of the channel ledges, the said cover overlapping the channel walls laterally and being spaced therefrom by the aforesaid channel ledges, substantially as and for the purpose specified.

2. In a drainage irrigation aeration conduit, the combination of two separable semi-tubes slidably adjustable to each other and arranged with their concavities confronting, one of said semi-tubes being shaped to form the channel having outwardly extending ledges formed in alinement longitudinally on the outside of its walls and voids therein above said ledges, and the other semi-tube forming the channel cover having its longitudinal edges outwardly flanged and returned inwardly so as to engage the corresponding edges of the channel ledges, the

said cover overlapping the channel walls laterally and being spaced therefrom by the aforesaid channel ledges, substantially as and for the purpose specified.

3. In a drainage irrigation aeration device the combination of two separable semi-tubes arranged with their concavities confronting each other, one of said semi-tubes forming a channel open upward and having one or more voids in its walls at and about their top edges, and the other semi-tube forming a cover for the channel, said cover being large enough transversely to overlap and overhang the channels' sides at a distance therefrom laterally, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM DAVIS DOUGLAS.

Witnesses:

ROBERT T. GILES,
E. L. SHARRETT.