June 5, 1923.

1,457,637

W. O. SIEVERS

DEVICE FOR CONDUCTING SURFACE WATER TO DRAIN TILES

Filed Sept. 11, 1922

2 Sheets-Sheet 1

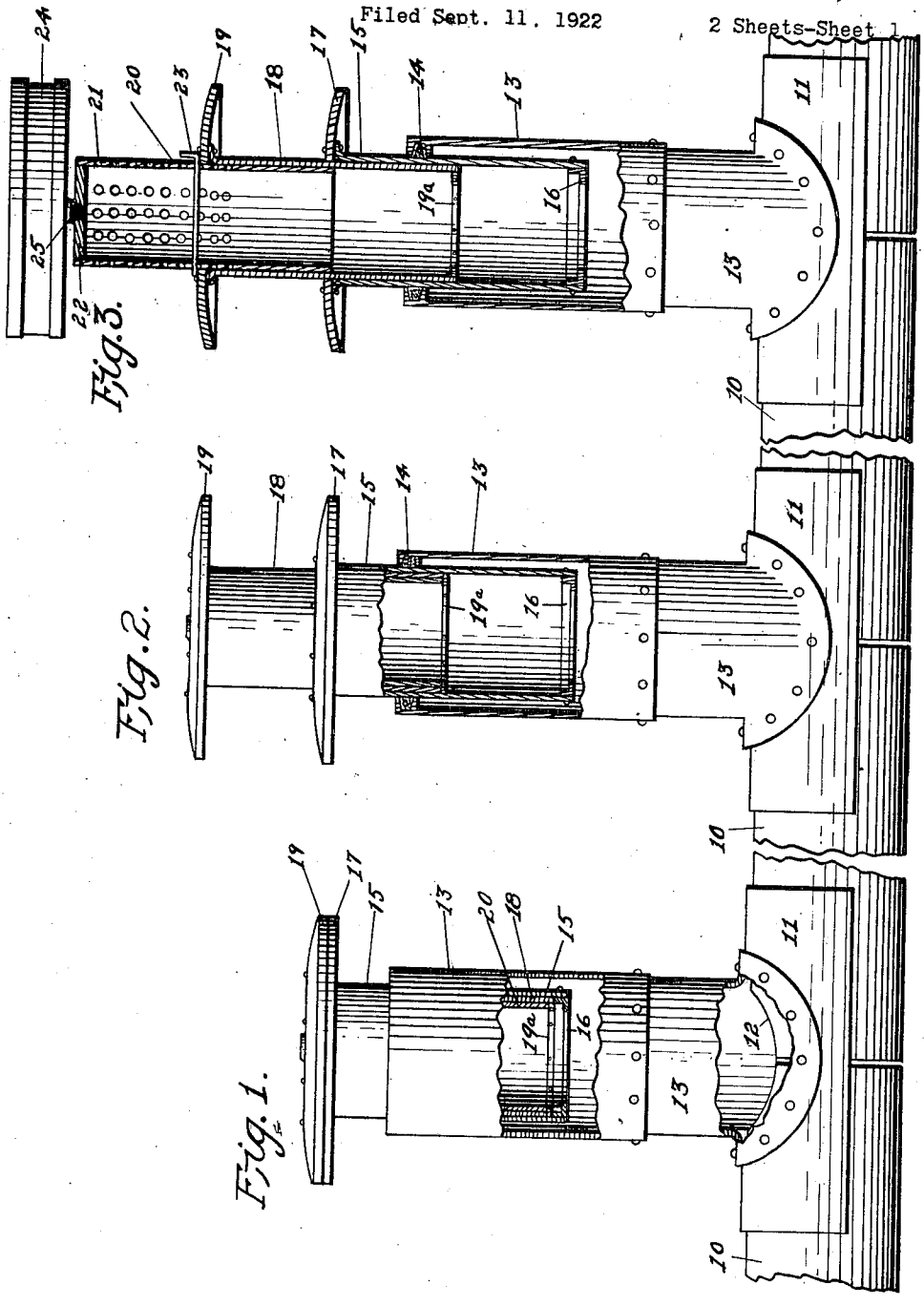


Fig. 3.

Fig. 2.

Fig. 1.

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2 Sheets-Sheet 2

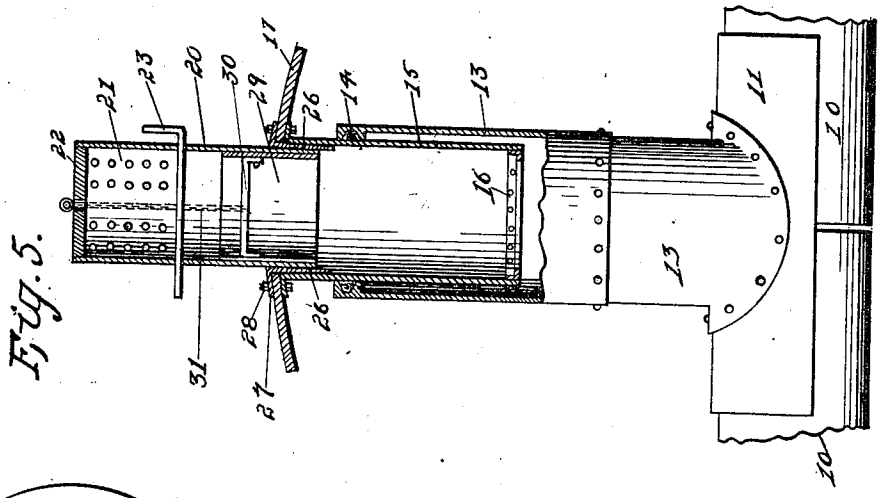


Fig. 5.

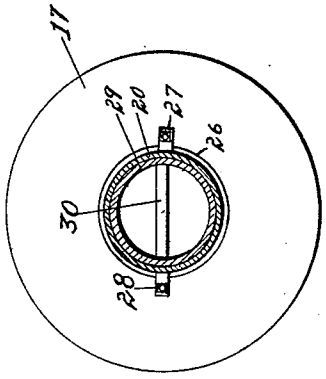


Fig. 6.

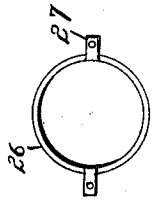


Fig. 7.

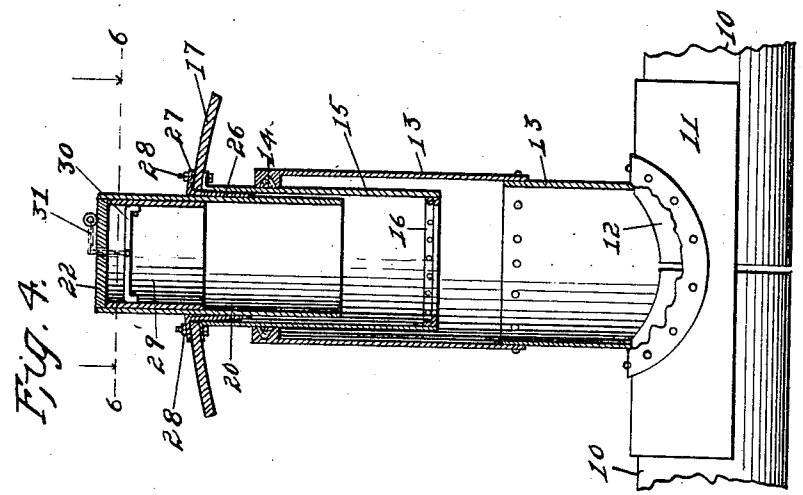


Fig. 4.

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Patented June 5, 1923. 1,457,637

UNITED STATES PATENT OFFICE.

WILLIAM O. SIEVERS, OF NEWELL, IOWA.

DEVICE FOR CONDUCTING SURFACE WATER TO DRAIN TILES.

Application filed September 11, 1922. Serial No. 587,641.

To all whom it may concern:

Be it known that I, WILLIAM O. SIEVERS, a citizen of the United States, and a resident of Newell, in the county of Buena Vista and State of Iowa, have invented a certain new and useful Device for Conducting Surface Water to Drain Tiles, of which the following is a specification.

The object of my invention is to provide a device of simple, durable and inexpensive construction designed to be applied to drain tile located under the surface of the ground which is intended to be cultivated, and particularly such land as is subjected to collection of surface water for the purpose of readily and quickly conducting water from the surface to the drain tile without having its passage delayed by percolating through the ground.

More specifically it is my object to provide a device of this class capable of being readily, quickly and easily adjusted to and supported in position for the following uses: first, to rapidly conduct surface water to the drain tile; second, to be in a withdrawn position so that vehicles may readily pass over it without injuring it; and third, to be in a further withdrawn position so that the surface may be plowed without striking the drainage device.

A further object is to provide means whereby the perforated water receiving extension may be automatically moved from its position where vehicles and animals may pass over it without injury to the device, to its upwardly extended position to receive water when the adjacent surface is flooded with water.

My invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 shows a side elevation of my device partly in section illustrating it in position so that a plow may pass over it without injury to the device.

Figure 2 shows a similar view illustrating the device in position closed against the entrance of surface water or dirt, and in position where vehicles may pass over it without injuring it.

Figure 3 shows a similar view illustrating the device in position for receiving surface water and conducting it to the tile.

Figure 4 shows a vertical, central, sectional view of a modified form of my invention in position with the receiving pipe closed and moved to a point level with the ground surface.

Figure 5 shows a sectional view of the same modified form showing the receiving section in its elevated position ready for operation.

Figure 6 shows a horizontal, sectional view on the line 6—6 of Figure 4; and

Figure 7 shows a top or plan view of the detachable clamping collar.

Referring to the accompanying drawings, I have used the reference numeral 10 to indicate a drain tile of ordinary construction and of the kind that is usually embedded several feet under the surface of the ground.

My attachment comprises a sheet metal base 11 curved to fit over the top portion of the drain tile, and having an opening at its central portion. In this connection it should be explained that before applying my device to the tile, the upper adjacent portions of the two tile sections are cut or broken away as shown at 12 in Figure 1.

Mounted on top of the base 11 is a lower pipe section 13 preferably made of sheet metal and communicating at its lower end with the drain tile. At its upper end I preferably provide a packing ring 14 extending inwardly.

Slidingly mounted within the pipe 13 and in engagement with the packing ring 14 is a lower adjustable pipe section 15 having at its lower end an inwardly extended shoulder 16 and having in its top end an outwardly extended anchoring flange 17.

Slidingly mounted within this lower pipe section 15 is an upper pipe section 18 having at its top an outwardly extended flange 19, and having at its lower end an inwardly extended flange 19ª, said pipe being so proportioned that when moved downwardly to its limit, its lower end will engage and rest upon the flange 16, and at the same time its flange 19 will engage and rest upon the flange 17.

Slidingly mounted within the upper pipe section 18 is a surface water receiving pipe section 20. Its upper portion is preferably

perforated at 21, and its top is closed with a solid metal disk 22. This section 20 is of such length that when moved downwardly to its limit, it will engage and rest upon the flange 19a, as shown in Figure 2.

In order to normally hold the water receiving section 20 at its proper elevation above the flange 19, I preferably extend a wire 23 through two of the perforations 21, the ends of the wire being permitted to rest upon the flange 19.

I have also provided a means for automatically elevating the perforated water receiving section 20 as follows:

The numeral 24 indicates a float device having a threaded extension 25 designed to be screwed into a threaded socket in the top 22 so that the float may thus be detachably connected with the upper end of the perforated water receiving section.

In practical operation and assuming that the device is in the position shown in Figure 3, then the flange 19 rests upon the top of the ground surface and the flange 17 is spaced below the ground surface a distance corresponding to the maximum depth of a plow furrow. When in this position, it is obvious that the device will be firmly supported against any of the sections moving upwardly or downwardly, and in the event that there should be a quantity of surface water on the ground, it will readily flow through the perforated water receiving sections, and down through the other sections into the tile, and its passage will not be delayed by the necessity of passing through the ground to the tile, as is now ordinarily done.

In the event that it is desired to cultivate or drive over the ground surface without obstruction by the device, and particularly when there is no likelihood of excessive surface water, then the pin 23 is removed and the water receiving section is permitted to slide down within the pipe section 18 until its top 22 is flush with the top of the flange 19, and when in this position the device will be sealed against the entrance of water or dirt or foreign matter of any kind, and vehicles and animals can pass over it without any injury to the device.

Further in the event that it is desired to plow the ground, then the earth between the flanges 17 and 19 is removed and the flange 19 pushed downwardly until it engages the flange 17, as shown in Figure 1, and when in this position, the lower ends of the section 18 will rest upon and be supported by the flange 16, and the lower end of the section 20 will rest upon the flange 19a. Or, if desired, the section 18 may be withdrawn upwardly through the ground and then the section 20 inserted in the section 15 with its closed top flush with the flange 17 and its bottom resting upon the flange 16, and the flange 17 will prevent further downward movement of the lower pipe section 15.

In the event that it is desired to leave the device in the position shown in Figure 2 so that the water receiving sections 20 will not project above the ground, and so that the entrance of dirt is prevented, and yet at the same time it is desired to have the device in the position ready to receive water in case of an accumulation of water on the surface of the ground, then the float device 24 may be applied to the water receiving pipe section, as shown in Figure 2, then in the event that the float is covered with surface water, it will rise and carry the perforated sections 20 up with it, as shown in Figure 3, whereupon the surface water may readily drain into the tile, and when it has drained, the weight of the float and the perforated pipe section will cause it to move downwardly. It is my intention to make these floats of such size and shape that when in use and resting on the ground surface, they will be inconspicuous and offer a minimum resistance to the passage of vehicles and the like.

Obviously after the ground has been plowed, the operator may readily and easily raise the flange 19 to a point level with the ground surface, and then fill in earth between the flanges 17 and 19, thus firmly supporting the flange 19 in its elevated position flush with the ground surface.

In the modified form illustrated on Sheet 2 of the drawings I obtain the same general result as that obtained by the use of the preferred form of my invention, and I dispense with the pipe section 18 and its flange 19. This is done as follows:

I have provided an anchoring collar 26 having a number of outwardly extending lugs 27. The collar is designed to be detachably fitted between the lower end of the receiving pipe 20, and the upper end to the adjustable pipe 15, as clearly shown in Figures 4 and 5.

When this device is intended to be used in connection with a float, then the anchoring collar 26 is omitted and the perforated receiving pipe 20 may then freely slide up and down so it can be controlled in such movement by the float. When, however, it is not desired to employ the float, then the anchoring collar 26 is placed in position and held by the bolts 28 which also connect the pipe 15 to the anchoring flange 17. This anchoring collar frictionally engages the parts in such a manner as to prevent the accidental up and down movement of the perforated receiving section.

For holding the perforated receiving section in its elevated position, I have found that by employing the anchoring rod 23 and passing it through the openings in the perforated receiving section, and permitting it

to rest upon the ground surface, the perforated receiving section will thereby be held against accidental downward movement.

In this modified form, and in order to prevent the entrance of earth, sand and the like through the perforations, when the device is adjusted to position flush with the ground surface, or below the ground surface far enough to be avoided by a plow, I have provided on the interior of the receiving pipe section 20 an open ended sleeve 29, capable of free up and down movement and provided with a cross piece 30 to which a chain 31 is attached. This chain 31 extends through an opening in the top 22. When the device is in the position shown in Figure 5, obviously all water that enters the top of the perforated receiving section will flow through the section 29 into the tile, but when the parts are adjusted to the position shown in Figure 4, then the sleeve 29 seals the openings and prevents the entrance of dirt.

I claim as my invention:

1. A device for conducting surface water to drain tiles comprising a pipe section having its lower end designed to rest upon and communicate with the interior of a tile, and being open at its upper end, a second pipe section slidingly mounted within the first, open at both ends and having an outwardly extended flange at its upper end designed to rest upon the ground surface, and a perforated pipe section slidingly mounted within the last named pipe section open at its bottom and closed at its top and capable of being moved from position where its perforated upper portion extends above the ground surface to position where it is contained within the upper pipe section having a flange and forming a closure for the top of the device, for the purposes stated.

2. A device for conducting surface water to drain tiles comprising a pipe section having its lower end designed to rest upon and communicate with the interior of a tile. and being open at its upper end, a second pipe section slidingly mounted within the first open at both ends and having a flange at is upper end exended outwardly and designed to be placed in the ground just below the level to which a plow furrow usually extends, another pipe section slidingly mounted within the last named pipe section and provided with an outwardly extended flange at its upper end designed to rest upon the top of the ground surface and to be supported by the ground in said position.

3. In a device of the class described, the combination of a lower stationary pipe section designed to rest upon and communicate with the interior of a drain tile having its upper end open, a packing ring on the interior of its upper open end, and a second pipe section slidingly mounted within the first and in engagement with the packing ring and provided with an outwardly extended flange at its top, a third pipe section slidingly mounted within the second one and provided with an outwardly extended flange at its top, and a fourth pipe section slidingly mounted within the third and having its upper end portion perforated and its top closed, for the purposes stated.

4. In a device of the class described, the combination of a lower stationary pipe section designed to rest upon and communicate with the interior of a drain tile having its upper end open, a packing ring on the interior of its upper open end, and a second pipe section slidingly mounted within the first and in engagement with the packing ring and provided with an outwardly extended flange at its top, a third pipe section slidingly mounted within the second one and provided with an outwardly extended flange at its top, and a fourth pipe section slidingly mounted within the third and having its upper end portion perforated and its top closed, and a float detachably connected to the forward perforated pipe section.

5. In a device of the class described, the combination of a lower stationary pipe section designed to rest upon and communicate with the interior of a drain tile and having its upper end open, a packing ring on the interior of its upper open end, and a second pipe section slidingly mounted within the first and in engagement with the packing ring and provided with an outwardly extended flange at its top, a third pipe section slidingly mounted within the second one and provided with an outwardly extended flange at its top, and a fourth pipe section slidingly mounted within the third and having its upper end portion perforated and its top closed, and means for limiting the downward movement of the perforated pipe section.

6. In a device of the class described, the combination of a lower stationary pipe section designed to rest upon and communicate with the interior of a drain tile, and having its upper end open, an open ended adjustable section slidingly connected with the stationary section, means for anchoring it against up and down movement, a perforated receiving section slidingly mounted within the said movable section, and means for securing it in various positions of its adjustment.

7. In a device of the class described, the combination of a lower stationary pipe section designed to rest upon and communicate with the interior of a drain tile and being open at its upper end, an open ended adjustable pipe section slidingly connected with the upper end of the lower stationary pipe section, means for anchoring it against up and down movement, a perforated receiving pipe section slidingly mounted and arranged

to discharge into the said open ended adjustable section, and a sleeve slidingly arranged relative to the perforated section in such a manner that a movement of one relative to the other will cause the perforations to be closed by the sleeve.

8. In a device of the class described, the combination of a lower stationary pipe section designed to rest upon and communicate with the interior of a drain tile and being open at its upper end, an open ended adjustable pipe section slidingly connected with the upper end of the lower stationary pipe section, means for anchoring it against up and down movement, a perforated receiving pipe section slidingly mounted and arranged to discharge into the said open ended adjustable section, means for securing it in various positions of its adjustment, and a sleeve slidingly arranged relative to the perforated section in such a manner that a movement of one relative to the other will cause the perforations to be closed by the sleeve.

WILLIAM O. SIEVERS.