

1,048,153.

Patented Dec. 24, 1912.

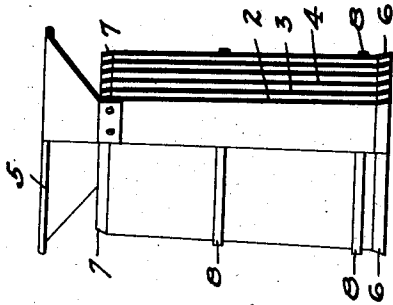


FIG. 11.



FIG. 7.

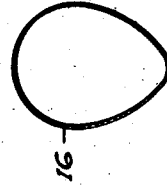


FIG. 8.

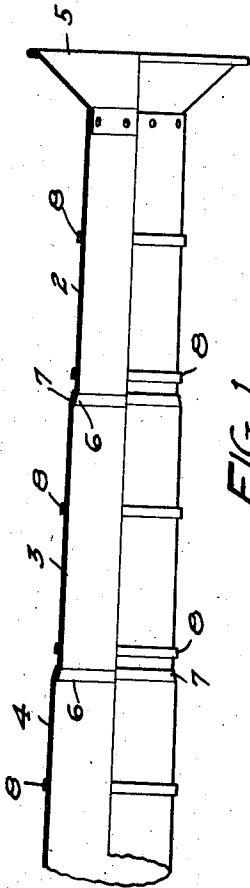


FIG. 1.

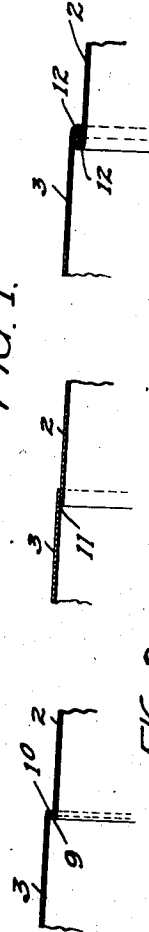


FIG. 2.

FIG. 4.



FIG. 3.



FIG. 5.

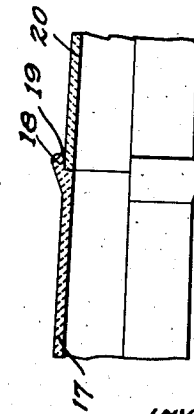


FIG. 9.

FIG. 6.

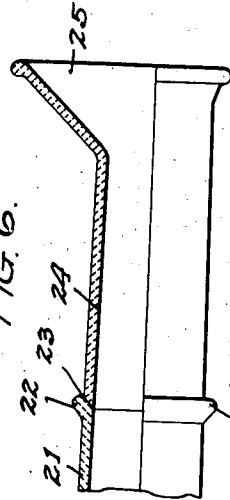


FIG. 10.

WITNESSES
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CULVERT.

1,048,153.

Specification of Letters Patent.

Patented Dec. 24, 1912.

Application filed March 27, 1912. Serial No. 686,705.

To all whom it may concern:

Be it known that I, WILLIAM H. HAIGHT, of Northfield, Rice county, Minnesota, have invented certain new and useful Improvements in Culverts, of which the following is a specification.

As usually constructed, devices of this kind are made of equal diameter throughout their whole length, rendering them by friction and from other causes easily choked by sediment and ice, sometimes causing back water and damage from flooding.

The object, therefore, of my invention is to provide a pipe which will clear itself naturally from ice and sediment.

My invention consists generally in gradually increasing the cross sectional area of the pipe section from its inlet to its discharge end.

In the accompanying drawings forming part of this specification, Figure 1 is a side view, partially in section, of a culvert pipe embodying my invention, Figs. 2, 3 and 4 are detail views illustrating modifications in the form of the joint between the sections, Figs. 5, 6, 7 and 8 illustrate modifications in the shape of the sections, Fig. 9 illustrates another form of joint which may be employed in some cases, Fig. 10 shows still another modification in the form of the joint, Fig. 11 is a view, partially in section, illustrating the sections nested together for convenience in storing or shipping.

In the drawing, 2, 3 and 4 represent pipe sections. These sections may be made of any suitable material, such as sheet metal, tile or concrete, or even a construction of masonry may be employed. In Fig. 1 I have illustrated the sections made of metal, preferably galvanized iron, as being more durable when exposed to the corroding action of water and earth. These sections, as noted in Fig. 1, each gradually increase in cross sectional area from the receiving toward the discharge end, the receiving end of section 2 being preferably provided with a collar 5 which may be employed when necessary to hold the embankment and prevent washing of an unnecessary amount of sediment by the flow of water entering the culvert or conduit. The initial section is provided with a flaring lip or flange 6 at its discharge end that is adapted to nest with the oppositely turned flange 7 of the receiving end of the adjacent section, thereby forming a snug joint and preventing leak-

age between the sections. The following sections are equipped in a similar manner. I may prefer also to reinforce or strengthen the sections by means of metallic rings 8 arranged at suitable intervals on the sections.

In Fig. 2 another form of joint is shown, which consists in providing an outwardly turned flange 9 on the discharge end of one of the sections to contact with an inwardly turned flange 10 of the adjacent section.

In Fig. 3 the sections are telescoped at 11.

In Fig. 4 a wire hoop 12 is rolled into the end of each section, one roll being turned in and the other out to engage one another when the sections are assembled.

In Fig. 5 a section 13 is shown, made oval in form.

In Fig. 6 the section 14 is similar to the one shown in Fig. 5, except that the bottom of the section is flat, or nearly so.

In Fig. 7 the section 15 is cylindrical in form.

In Fig. 8 a section 16 is shown with rounded walls, narrower at the base than at the top.

In Fig. 9 I have shown a section 17 composed of composition material, such as concrete, having an annular flaring flange 18 at one end provided with a recess 19 to receive the end of the adjacent section 20, the inner walls of the sections forming a smooth, continuous surface.

In Fig. 10 the section 21 has an annular flange 22 at one end provided with a beveled face 23, against which the corresponding face at the end of the section 24 is seated. This section 24 is preferably provided with a flaring end or mouth 25.

In Fig. 11 a series of the sections are shown in nested form, for convenience in shipping or storing, this figure relating to the sheet metal construction illustrated in Fig. 1. The rings or hoops 8 are formed separately from the sections and are driven on after the telescoping sections are extended, consequently they will not interfere in the nesting of the sections.

In the sectional construction illustrated in Figs. 5 to 8, the oval forms in Figs. 5 and 6 provide for increased strength and clearance and are adapted particularly for use where the fill over the culvert is limited as to depth, as, for instance, under street crossings, where the covering will be largely of cement, concrete, or the like. All of these

forms will gradually increase in cross sectional area from the receiving toward the discharge ends. The sections, increasing in cross sectional area from end to end and from section to section, will be numbered consecutively for convenience in assembling, and any number of sections may be furnished, according to the length of the culvert or wherever the device may be used.

10 In culverts generally it is necessary to contend against a wash or a sediment and in colder climates this sediment is frequently combined with ice, thereby choking the flow, and usually at a time when the conduit
15 should be free and open. Culverts are usually of comparatively short length and a pipe of suitable diameter to take care of the flow may, by utilizing this invention, be reduced considerably in cross sectional area at the intake and enlarged at the discharge
20 end, the average diameter being used as a basis for figuring the capacity of the pipe. It will be readily understood that a pipe thus gradually increasing in cross sectional
25 area will prevent unnecessary friction and when choked by ice, the seepage around the outside and the pressure of the water from the rear will soon work through and produce an outlet, and the clogged material
30 will, by the action of the water, soon be wasted away and carried to the discharge end of the pipe.

I do not wish to confine the use of my invention to culverts, as it may be employed
35 in various ways where it is desirable to prevent choking of ice or sediment in the interior of a water-carrying pipe.

I claim as my invention:—

1. A culvert composed of sections having

their abutting ends joined together, each section gradually increasing in cross sectional area from its receiving toward its discharge end, whereby the inner walls of the culvert will flare continuously from the inlet to the outlet thereof.

2. A device of the class described comprising abutting sections adapted to telescope with one another from end to end, the larger end of one section having means to engage the receiving end of the adjacent section and form a joint therewith, each of said sections increasing gradually in cross sectional area from its receiving toward its discharge end.

3. A device of the class described comprising a series of separable sections increasing gradually in cross sectional area from their receiving toward their discharge ends, whereby the sections, when assembled, will form a continuous opening gradually increasing in size from one end to the other, and a flaring collar provided at the receiving end of the initial section.

4. A culvert composed of a series of telescoping metallic sections, each section having a reinforcing band encircling the same and increasing gradually in diameter from its receiving toward its discharge end, the discharge end of each section having means for interlocking with the receiving end of the adjacent section.

In witness whereof, I have hereunto set my hand this 20th day of March, 1912.

WILLIAM H. HAIGHT.

Witnesses:

JENNIE M. HAIGHT,

CHARLES R. PYE.