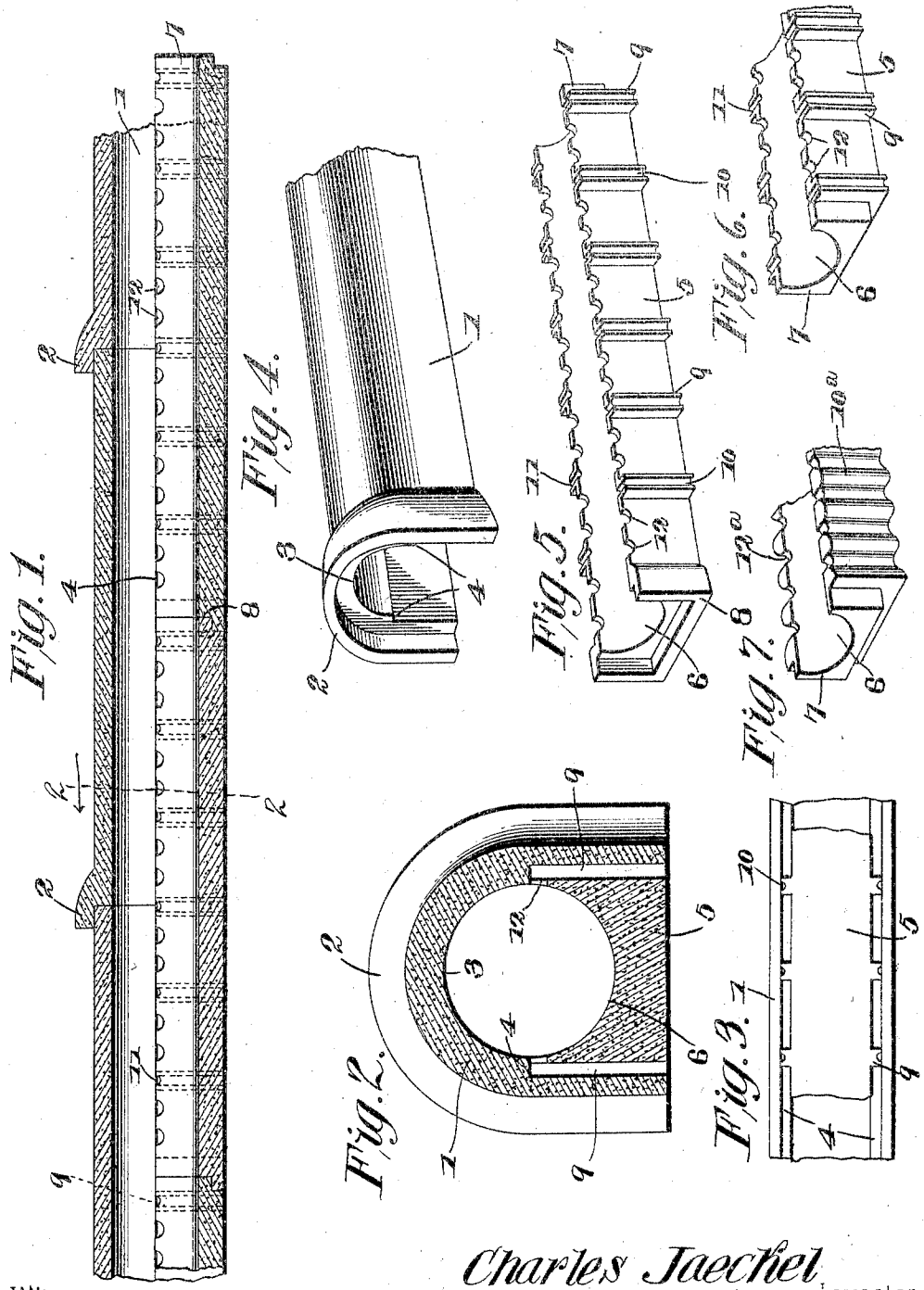
No. 780,189. PATENTED JAN. 17, 1905.

C. JAECKEL.

DRAIN CONDUIT.

APPLICATION FILED SEPT. 30, 1904.

2 SHEETS—SHEET 1.



Witnesses

E. F. Stewart

H. C. Shepard.

Charles Jaeckel Inventor

by C. A. Snow & Co.

Attorneys

No. 780,189. PATENTED JAN. 17, 1905.

C. JAECKEL.

DRAIN CONDUIT.

APPLICATION FILED SEPT. 30, 1904.

2 SHEETS—SHEET 2.

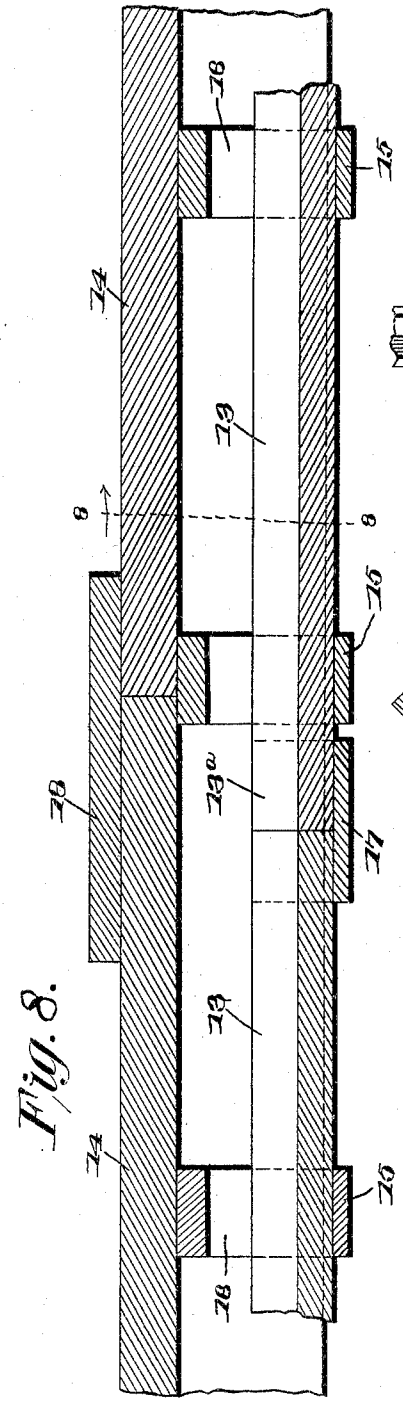


Fig. 8.

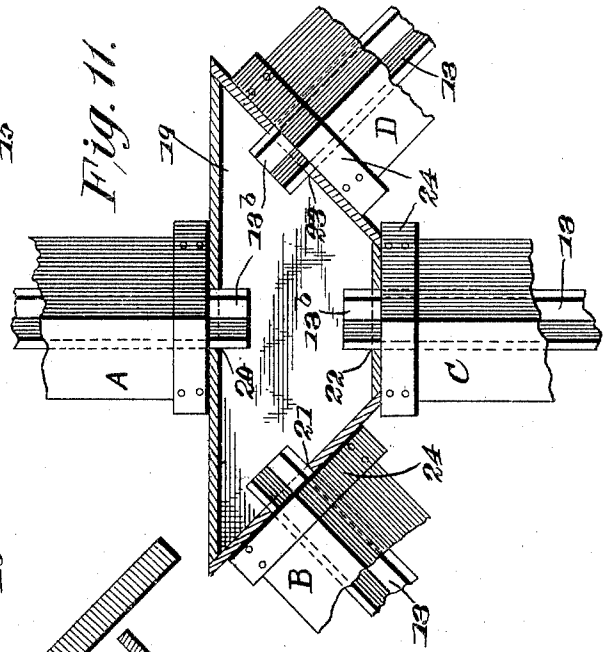


Fig. 11.

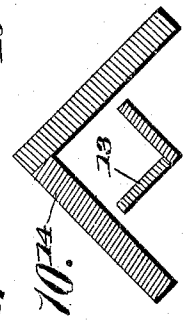


Fig. 10.

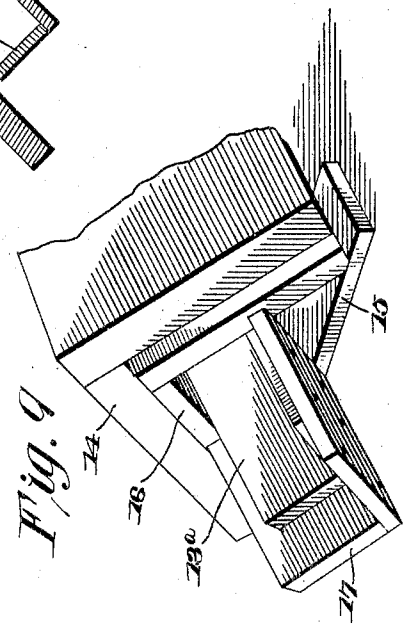


Fig. 9

Witnesses

E. F. Stewart

H. S. Shepard.

Charles Jaeckel

Inventor

by C. A. Snow & Co.

Attorneys

No. 780,189. Patented January 17, 1905.

UNITED STATES PATENT OFFICE.

CHARLES JAECKEL, OF WARMSPRINGS, MONTANA.

DRAIN-CONDUIT.

SPECIFICATION forming part of Letters Patent No. 780,189, dated January 17, 1905.

Application filed September 30, 1904. Serial No. 226,719.

To all whom it may concern:

Be it known that I, CHARLES JAECKEL, a citizen of the United States, residing at Warmsprings, in the county of Deerlodge and State of Montana, have invented a new and useful Drain-Conduit, of which the following is a specification.

This invention relates to means for draining low lands, and has for its object to provide an improved form of conduit capable of being conveniently laid in a ditch so as to readily receive the water and carry the same to any remote point in a rapid and efficient manner.

It is furthermore designed to have the conduit take water in such a manner as to obviate the collection of earth, trash, &c., within the conduit, and thereby obviate choking or stoppage of the conduit.

Another object of the invention is to provide for the manufacture of the device out of metal, cement, terra-cotta, or the like for commercial purposes and also to construct the conduit of boards in order that it may be readily built up on the ground wherever it is required.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of a portion of a conduit constructed in accordance with the present invention and formed of cast or molded material. Fig. 2 is an enlarged cross-sectional view on the line 2 2 of Fig. 1. Fig. 3 is a bottom plan view of a portion of the conduit. Fig. 4 is a detail perspective view of one end portion of the external member of the conduit. Fig. 5 is a perspective view of one of the inner members of the conduit. Fig. 6 is a detail perspective view looking at the opposite end of said inner member. Fig. 7 is a detail view similar to Fig. 6, showing a modified form of inner member. Fig. 8 is a longitudinal sectional view of the conduit formed of boards. Fig. 9 is a detail perspective view of one end of a conduit-section, showing the inner conduit member projected for connection with another member. Fig. 10 is a cross-sectional view on the line 8 8 of Fig. 8. Fig. 11 is a plan section illustrating the manner of connecting several branch conduits.

Like characters of reference designate corresponding parts in each and every figure of the drawings.

As hereinbefore indicated, the present invention has been embodied in two forms, and I will now proceed to describe the cast or molded form. The cast form of the invention includes an outer semitubular member 1 substantially semi-elliptical in cross-section, with an open bottom and a closed arched top. This member is of suitable length and diameter, according to the desired capacity of the conduit, and of uniform diameter throughout, except at one terminal, which is provided with a projected marginal flange 2, constituting a bell to receive the adjacent end of another section, as clearly indicated in Fig. 1 of the drawings. The top of the interior of the exterior member is arched, as at 3, and the lower interior portion is increased in width so as to form longitudinal shoulders 4 at opposite ends of the base of the arched portion. The inner member 5 is substantially rectangular in cross-section, closed at its bottom and open throughout its top, and of a size to fit within the enlarged lower portion of the interior of the outer member 1. The top of the inner section is concaved or guttered, as indicated at 6, so as to coöperate with the arched portion 3 of the outer member and produce a channel which is substantially circular in cross-section. One end of the inner section is provided with a reduced extension 7, while the opposite end is provided with a projected marginal flange or bell 8 to receive the projected end portion of the adjacent inner section. The external width of the inner member is somewhat less than the internal width of the outer member so as to provide longitudinal interspaces between the two members at opposite sides of the inner member, said spaces being divided

into sections by means of external integral upright ribs 9, formed upon the inner member and of a thickness to engage the inner straight upright walls of the outer member, and thereby maintain the inner member centered within the outer member. Each rib is provided in its outer face with an upstanding groove or channel 10, which is open at opposite ends, and also has a transverse groove or channel 11 in the top of the rib, with its outer end intersecting the upright groove 10 and its inner end intersecting the adjacent top edge of the inner member. Between the ribs the upper edge of the inner member is provided with notches or recesses 12, which, together with the grooves 11, constitute passages affording communication from the interspaces between the two members to the interior of the conduit.

In making use of the cast or molded form of the conduit a suitable ditch or trench is dug in the usual manner, and the sections of the conduit are assembled and placed in the ditch, with the inner members arranged to break joints with the outer members, as clearly indicated in Fig. 1. When the conduit has been placed in position, such water as runs into the ditch or trench passes upwardly through the interspaces between the inner and outer members and thence through the notches 12 and grooves 11 into the interior of the conduit, where it is carried off as in an ordinary sewer-pipe. The advantage of this form of conduit resides in the ease with which it may be assembled and placed in a trench or ditch, and, furthermore, in the fact that the water rises through the bottom of the conduit into the interior thereof, wherefore earth, trash, and other debris is excluded from the interior of the conduit and the latter can, therefore, never become choked or obstructed by accumulations therein.

The wooden form of the invention has been shown in Figs. 8 to 11, inclusive, and consists of an inner substantially **V**-shaped trough member 13, formed of two pieces of board, which are nailed or otherwise connected, and an outer member 14 in the nature of a larger inverted substantially **V**-shaped trough formed of two boards and embracing the inner member so as to form a hood therefor. At suitable intervals the cross-sills 15 extend transversely across the bottom of the inner trough member 13 and extend the full width of the outer member 14, there being combined braces and spacers 16 interposed between the inner member and the outer member with their lower ends resting upon the sills, whereby the members are rigidly connected and a space is maintained between the upper edges of the trough and the inner walls of the outer member or hood. At one end of the conduit-section the inner or trough member 13 is provided with an extension 13^a, and the adjacent cross-sill 15 and spacers 16 are also projected beyond the end of the outer member 14, while at the opposite end of the conduit-section, as indicated in Fig. 1, the inner or trough member 13 is terminated short of the adjacent outer end of the outer member 14. The projected portion 13^a of the inner or trough member is embraced by a short trough-section 17, which is nailed thereto and projected slightly in advance of the portion 13^a, with its rear end abutting against the adjacent sill 15 and spacers 16, said trough-section 17 corresponding to the bell portion 8 of the inner member (shown in Figs. 1 to 5, inclusive, of the drawings) and designed to receive the adjacent end of the trough member of another conduit-section, as clearly shown in Fig. 1, with the projected front edges of the spacers 16 projected into the outer member 14 opposite said other section, whereby the inner and outer members are arranged to break joints. That end of the conduit-section which has the inner or trough member terminated short of the outer member is provided with a sheath 18 in the nature of an inverted trough secured to the outer member and projected beyond the same so as to embrace the adjacent end of another section, and thereby lap and close the joint between the two outer members of adjacent conduit-sections.

It will here be explained that the several parts of each conduit-section are formed of wood cut into proper lengths and sizes and nailed together or otherwise connected so as to form a rigid conduit-section capable of being placed as a whole in a ditch or trench. By reason of the fact that the conduit is closed throughout its top and has bottom openings extending upwardly between the inner and outer members and in communication with the inner member over its top edges the water which runs into the trench or ditch rises through said space and over the top edges of the trough into the latter, whereby earth, trash, &c., cannot gain access to the interior of the conduit and choking or obstructing of the latter is thereby obviated.

An important advantage of the wooden form of conduit resides in the fact that it may be built up on the ground where the conduit is to be laid, thereby materially reducing the cost of building the conduit by obviating manufacturer's profits, freight, and other expenses incidental to the transportation of a manufactured conduit.

To provide for connecting a plurality of branch conduits with a main conduit, as shown in Fig. 11, wherein A designates a main conduit and B, C, and D indicate branch conduits, I employ a connecting-box 19 of appropriate shape, according to the angular disposition of the branch conduits with respect to the main conduit. The sides of this box are provided with substantially triangular openings 20, 21, 22, and 23 for the reception of the projected end portions 13^b of the inner

or trough members of the respective conduit-sections, the ends of the outer members of the conduit-sections being fitted snugly against the box and provided with external cleats or braces 24, nailed or otherwise secured to the outer members of the sections. By this arrangement the projected trough portions 13^b afford a sufficient connection between the conduit-sections and the connecting or coupling box to prevent lateral displacement thereof, and all of the branches discharge into the box and the main conduit carries the water therefrom.

In Fig. 7 of the drawings there is shown a modified inner member of the cast or molded type wherein the sides of the member are corrugated so as to produce ribs 10^a, with a notch 12^a formed in the upper edge of the member and located between each pair of ribs.

From the foregoing description it will be understood that each embodiment of the invention includes inner and outer members, with the outer member open at its bottom and the inner member open at its top, there being spaces or passages between the two members and leading into the interior of the inner member, the latter operating as a trough to receive and carry off the water which rises through the bottom of the outer member and into the inner member, whereby earth and other obstructions are effectually prevented from gaining access to the interior of the conduit, and the latter is therefore prevented from becoming choked or obstructed. Furthermore, the invention has been embodied in a form to be manufactured by casting or molding for commercial purposes upon an extensive scale and in addition has also been embodied in a form capable of being constructed of wood so as to be built up on the ground where temporary or inexpensive conduits are desired.

The cast or molded form of the conduit is preferably formed of porous material, so that should the passages between the two members of the conduit become choked and the water backed up around the conduit the porous nature of the device will permit of the water percolating through the walls of the conduit in a manner to effectively carry off the accumulated water.

Having fully described the invention, what is claimed is—

1. A drain-conduit comprising an outer member and an inner member, the outer member being open at its bottom and the inner member being open at its top, there also being a passage leading from the open bottom of the outer member to the open top of the inner member, and said inner member constituting a trough or gutter.

2. A drain-conduit comprising an outer member which is open throughout its bottom, and an inner member open throughout its top and spaced from the inner side walls of the outer member, there also being a space between the upper edges of the inner member and the top of the outer member whereby passages are formed leading from the open bottom of the outer member into the open top of the inner member, said inner member constituting a trough or gutter.

3. A drain-conduit comprising inner and outer members, the outer member being open at its bottom and the inner member being open at its top, there being a passage between the members leading from the open bottom of the outer member to the open top of the inner member, each of said members having one end provided with a bell extension to receive the complementary end of another member.

4. A drain-conduit comprising inner and outer members, the outer member being open throughout its bottom and the inner member being open throughout its top, the two members being separated by an interspace and the upper edge of the inner section having notches communicating from the interspace to the exterior of the inner member.

5. A drain-conduit comprising inner and outer members, the outer member being open throughout its bottom, the inner member being open throughout its top and provided with external upstanding spacing-ribs, and the upper edge of the inner member being provided with notches communicating from the space between the members to the interior of the inner member.

6. A drain-conduit comprising inner and outer members, the outer member being open throughout its bottom, the inner member being open throughout its top and provided with external upstanding spacing-ribs having upright grooves and transverse grooves in its top intersecting the upright grooves.

7. A drain-conduit comprising an outer semitubular member which is open throughout its bottom and has substantially parallel internal side walls, an internal substantially rectangular member open throughout its top and provided with external upstanding spacing-ribs engaging the inner walls of the outer member, the upper edges of the inner member being provided with notches located between the spacing-ribs to afford communication from the spaces between the inner and outer members into the interior of the inner member.

8. A drain-conduit comprising an outer substantially semitubular member which is open throughout its bottom and is provided with substantially parallel inner walls, one end of the member being provided with a bell, and an inner substantially rectangular member having a gutter in the top thereof and provided at one end with a reduced extension and at its opposite end with a projected bell portion, the sides of the inner member being provided with external upstanding spacing-

ribs having upright grooves intersecting the tops and bottoms thereof and transverse grooves in the tops of the ribs intersecting the tops of the upright grooves and the upper edges of the inner member, said upper edges of the inner member also being provided with notches located between the ribs.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES JAECKEL.

Witnesses:
O. Y. WARREN,
THEO. BLACKSTONE.