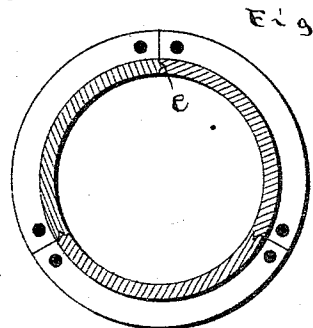
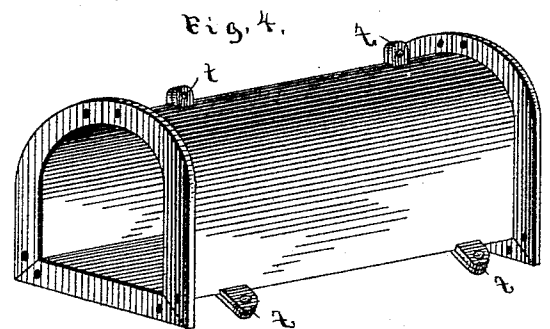
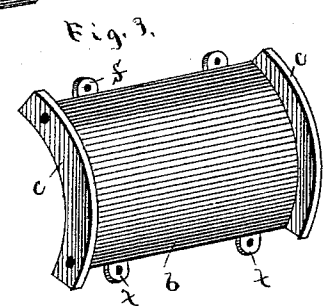
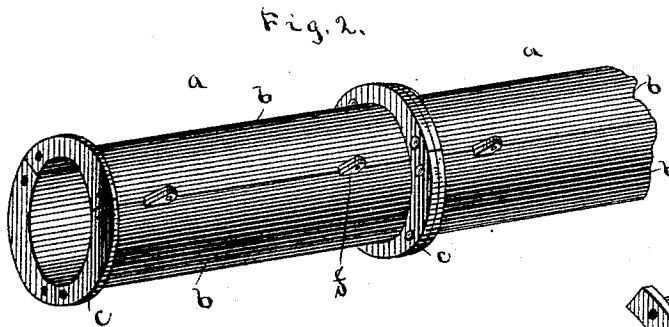
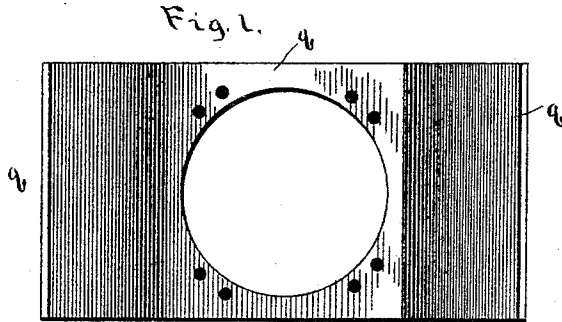


(No Model.)

O. W. WERTZ.
CULVERT.

No. 437,954.

Patented Oct. 7, 1890.



WITNESSES:

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OLIVER W. WERTZ, OF AUBURN JUNCTION, INDIANA.

CULVERT.

SPECIFICATION forming part of Letters Patent No. 437,954, dated October 7, 1890.

Application filed July 14, 1890. Serial No. 358,760. (No model.)

To all whom it may concern:

Be it known that I, OLIVER W. WERTZ, of Auburn Junction, in the county of De Kalb and State of Indiana, have invented certain new and useful Improvements in Culverts; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in the construction of culverts.

The object of the invention is to provide an improved culvert, exceedingly strong and durable, and manufactured at a small minimum cost, and which can be easily and quickly built and put into position, and will be far cheaper and more easily built and more durable than the stone or brick culverts usually constructed beneath railroads, roads, &c. These objects are accomplished by and my invention consists in certain novel features of construction and in combinations of parts more fully described hereinafter, and particularly pointed out in the claim.

Referring to the accompanying drawings, Figure 1 is an elevation of one end of the culvert. Fig. 2 is a detail view of the culvert pipe or lining. Fig. 3 is a detail section thereof. Fig. 4 is a detail perspective of a different shape. Fig. 5 is a detail cross-section showing the joint between the longitudinal sections.

The culvert is composed of a pipe or lining of the desired shape in cross-section. This lining or pipe is formed in transverse sections *a*, and each transverse section is composed of two or more longitudinal sections *b*. The transverse sections are preferably all of the same length and size, and the longitudinal sections of each transverse section are all the same size, so that all the parts are interchangeable.

The transverse sections at their opposite ends are provided with annular projecting flanges *c*, provided with corresponding bolt

or rivet holes, so that when the sections are placed together said holes will register and the sections can be firmly and rigidly secured together by bolts or rivets.

One longitudinal edge of each section *b* is provided with a V-shaped bead or projection *e*, and the other edge is provided with a corresponding V-groove, so that when the two or more longitudinal sections are fitted together their longitudinal edges will be joined to form fit joints by said projections and grooves. Each longitudinal edge of each section *b* is provided with two or more similar radially-projecting perforated lugs *f f*, which register when the pipe is formed and are rigidly secured together by bolts or rivets. It will thus be seen that a pipe or lining is formed of great strength and durability. The sections *b*, composing the pipe, are all alike and are cast integral with great rapidity and at a minimum cost for both labor and material; or, if desired, these sections can be made of wrought-iron; but it is preferred to cast them, as but one shaped mold is required. The expensive and laborious operation of casting round pipe integral is avoided, which requires the use of an expensive core.

Packing can be interposed between the annular end blades to form tight joints, and spring-washers can be used on the bolts to allow expansion and contraction of the sections. The lugs for securing the longitudinal sections together can be formed with corresponding interlocking recesses and projections (not shown) instead of perforations and bolts or rivets.

The culvert can be made D-shaped, as shown in Fig. 4, if desired, with a flat bottom.

In constructing the culvert large metal plates *g* are bolted or secured to the end flange of the pipe, as shown in Fig. 1, so as to surround the ends of the culvert and prevent washing out around the ends of the culvert or pipe. These plates can be expanded laterally, as shown.

The construction is more especially intended for culverts, highways, railways, &c.; but it may also be used for water-pipes, sewers, &c. By this construction the pipe can be

easily transported to the spot where it is to be laid, and can be then quickly put together.

What I claim is—

5 A pipe or culvert consisting of two or more longitudinal sections cast integral, with exterior perforated flanges at its ends, with exterior lugs at its longitudinal edges, and with a V-bead on one longitudinal edge and a corresponding V-groove in the other edge.

10 In testimony that I claim the foregoing as

my own I affix my signature in presence of three witnesses.

OLIVER W. WERTZ.

Witnesses:

GEO. W. WERTZ,

his

JACOB X COOPER,

mark

D. J. HUSSELMAN.