

**951,226.**

2 SHEETS—SHEET 1.

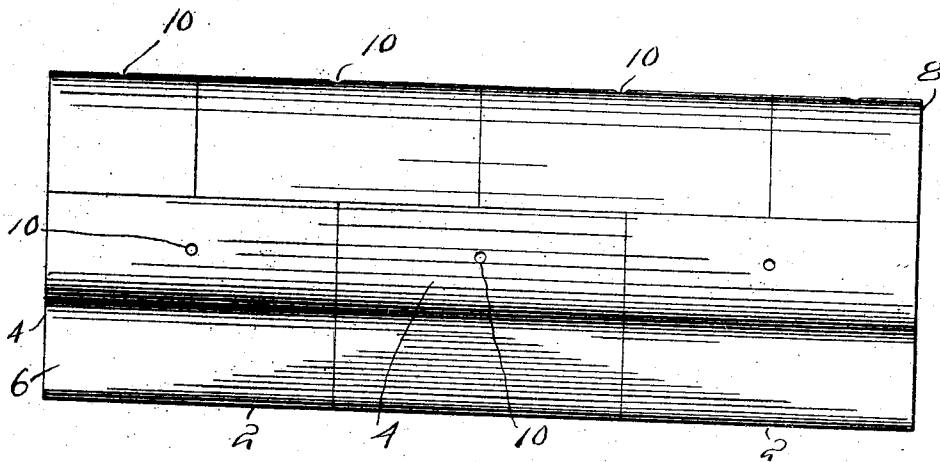


Fig. 1

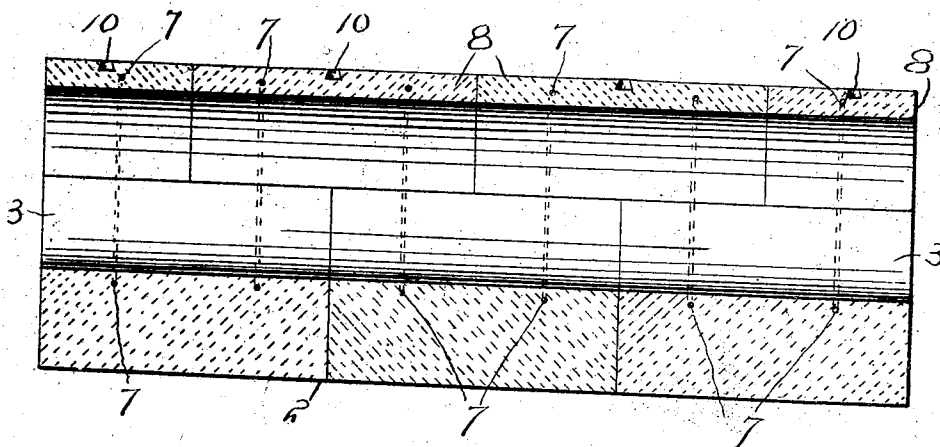


Fig. 2

**Witnesses**

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CEMENT CULVERT.  
APPLICATION FILED OCT. 24, 1907.

951,226.

Patented Mar. 8, 1910.

2 SHEETS—SHEET 2.

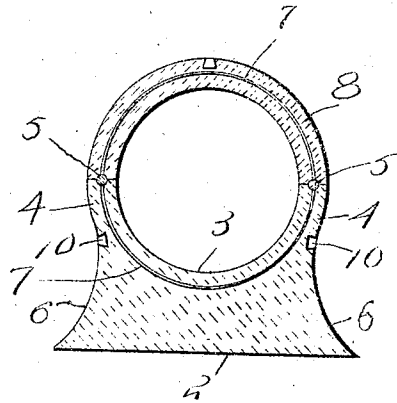


Fig. 3.

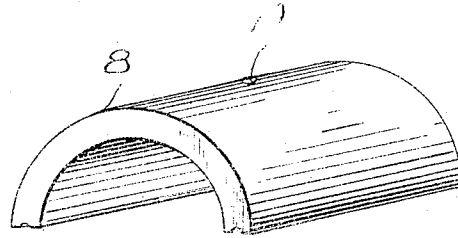


Fig. 5.

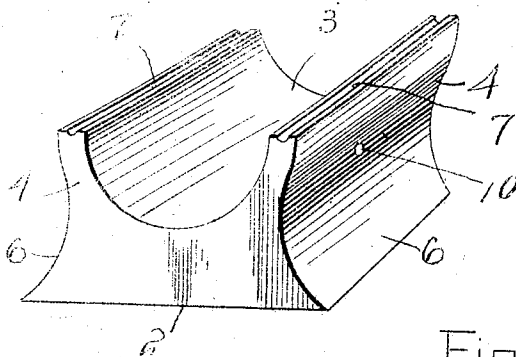


Fig. 4.

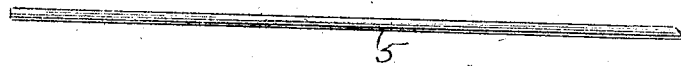


Fig. 6.

Witnesses

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# UNITED STATES PATENT OFFICE.

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CEMENT CULVERT.

951,226.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed October 24, 1907. Serial No. 399,034.

To all whom it may concern:

Be it known that I, CLARENCE A. VAN RIPER, a citizen of the United States, residing at Hudson, in the county of Lenawee, State of Michigan, have invented certain new and useful Improvements in Cement Culverts; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to cement culverts for use in any place to which they may be suited, but especially for railways and highways, where high engineering skill is not readily attainable for setting them up or putting them in right and efficient positions.

The nature of the invention is embodied in the means illustrated in the accompanying drawing, in view of which it will first be described with respect to its construction and mode of employment and then be pointed out in the subjoined claim.

Of the said drawings—Figure 1 is a top view of a section of my improved culvert. Fig. 2 is a longitudinal sectional view. Fig. 3 is a transverse sectional view of my culvert. Fig. 4 is a perspective view of one of the base sections. Fig. 5 is a perspective view of a cap piece, while, Fig. 6 shows one of the cement cords.

Similar characters of reference designate similar parts or features, as the case may be, wherever they occur.

In the drawings 2 designates a base section of my improved culvert constructed with a half round depression 3 extending longitudinally in its upper side which is intended to constitute half of the opening through the culvert. The sides 4 of the depression will be properly built up, and their upper edges will be provided with a half round groove for the reception of cement cord 5, to be presently more specifically described. The bottom of the base-section is flared outwardly at each side, as at 6, the said flared part acting as a brace to the sides. The base sections will ordinarily be made about two feet in length and each section will have cast therein at intervals of about one foot a half round supporting or reinforcing bar 7 of iron or steel as large as the circumstances may call for.

8 designates a cap section of the same length as the base section and made in the same way excepting that the depression to

form the opening is reversely curved and the top is likewise curved reversely, omitting the flared base.

In the construction of a culvert the base sections will break joints with the cap sections, and therefore the beginning of the building of a culvert may take but a half-cap section in length and end in the same way, as shown, but the half-round steel reinforcing bars 7 will be cast in the cap sections in such position that their ends will meet the ends of similar bars in the base sections, and thus practically form reinforcing bars of steel in the form of rings in the cement.

The upper edges of the sides of the base sections as well as the lower edges of the cap sections will have half-round grooves made therein, as indicated, to receive the tie cement cord 5 when the sections are put together, in building a culvert. The said cord is continuous, and being independent of the sections, may be composed of any suitable material that will not only hold the sections in place and preserve the continuity of the joints, but constitute a device to which the ends of the semicircular reinforcing rings may be connected to preserve their position and continuity. (See particularly Figs. 3 and 4.) Each section is provided with recesses 10 for the reception of the ends of lifting instruments to facilitate putting them into place. The recesses for the lifting instruments as will be noted come opposite the reinforcing bar 7, so that danger of the fracture of the sections by the pressure of the lifting instruments is obviated, as the reinforcing elements are disposed at the points where the greatest strains occur. This is an important feature of the invention and adds materially to its efficiency and utility.

By my improvements a very strong, efficient and economical culvert may be constructed, and one, while requiring good intelligence in seeing that it is properly made, does not call for high engineering skill in its construction.

From the above description it will be realized that there is provided a sectional culvert which may be quickly set, by reason of the fact that the surface upon which it is placed requires no special preparation other than to be made substantially level. The earth that is filled upon the culvert, gravitates against the concaved portions of the sides of the base member, and holds the base member against tilting and consequent open-

ing of the seams of the culvert. Furthermore, there are presented side surfaces against which the earth may be rammed when desired, although in practice it is found that this is not necessary as the settling of the earth causes it to wedge securely against the concaved side faces of the base member.

What is claimed is—

- 10 A sectional culvert comprising a base member having its lower face flat and each of its side faces having a compound curvature extending continuously from the upper and outer longitudinal edge to the corresponding lower longitudinal edge, the upper
- 15 portion of such curvature being convex and extending to a point adjacent the middle of the base and the lower portion concave and

extending laterally beyond the upper portion, whereby faces are provided against which a filling may gravitate, said base member being further provided on its upper face with a concave depression, the depth of which corresponds to one half the distance between the upper and lower faces of the member, and a hollow semi-cylindrical upper member disposed on the base member, the outer surface of which extends continuously with the side faces of the base member.

In testimony whereof, I affix my signature, in presence of two witnesses.

CLARENCE A. VAN RIPER.

Witnesses:

B. D. CHANDLER,  
GRANT FELLOWS.