F. B. ZIEG.

CULVERT.

APPLICATION FILED SEPT. 2, 1909.

960,137.

Patented May 31, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

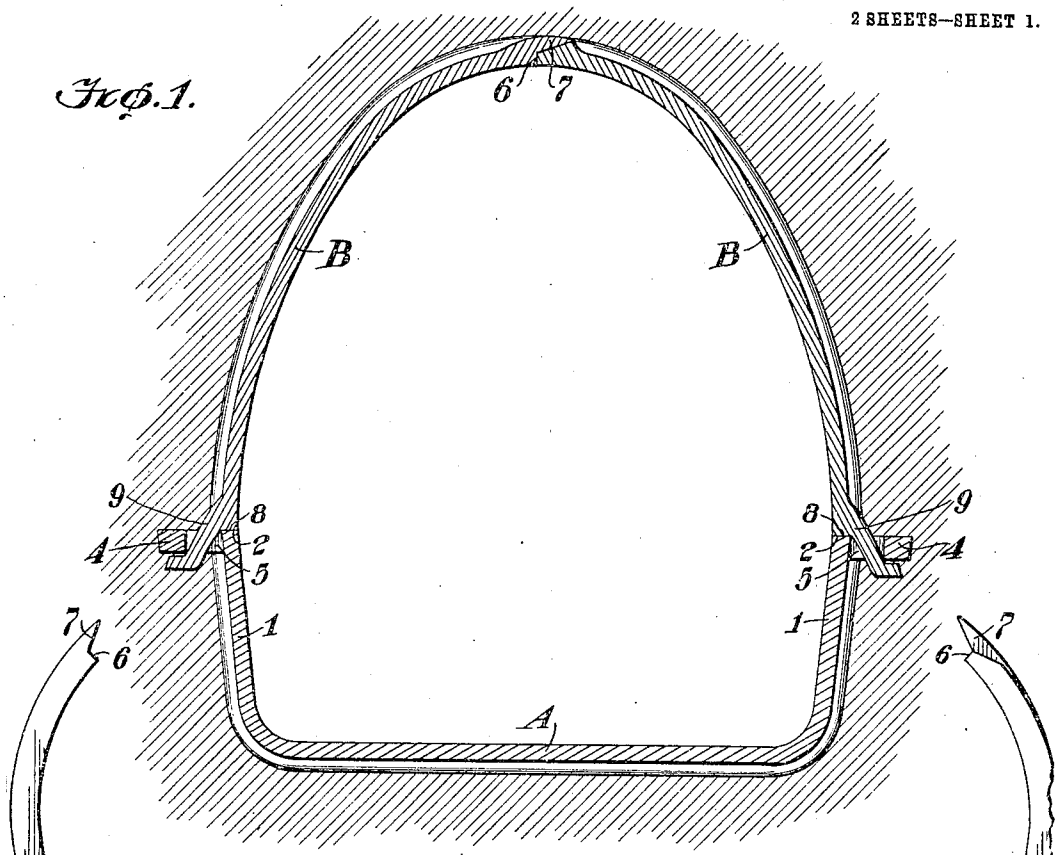
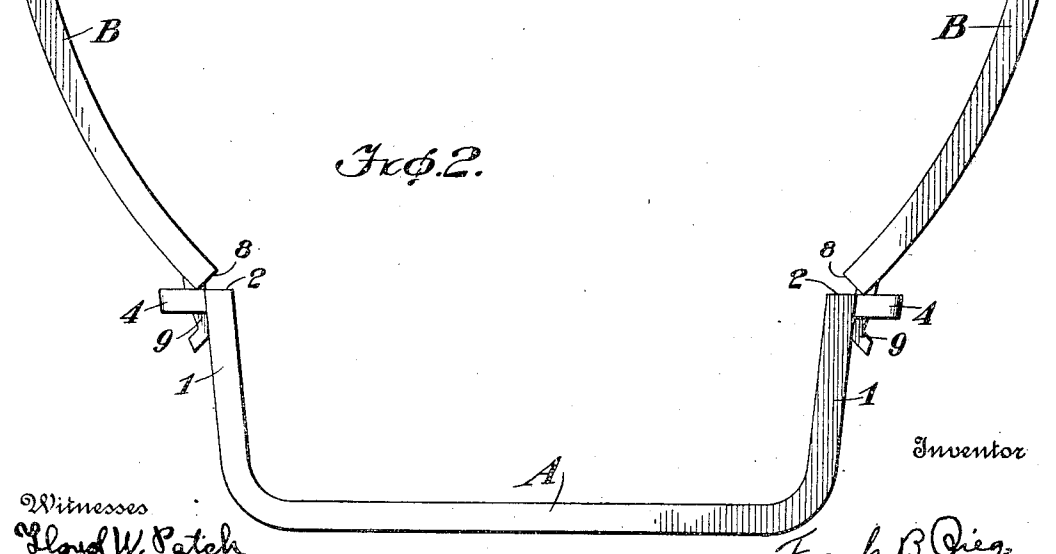


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

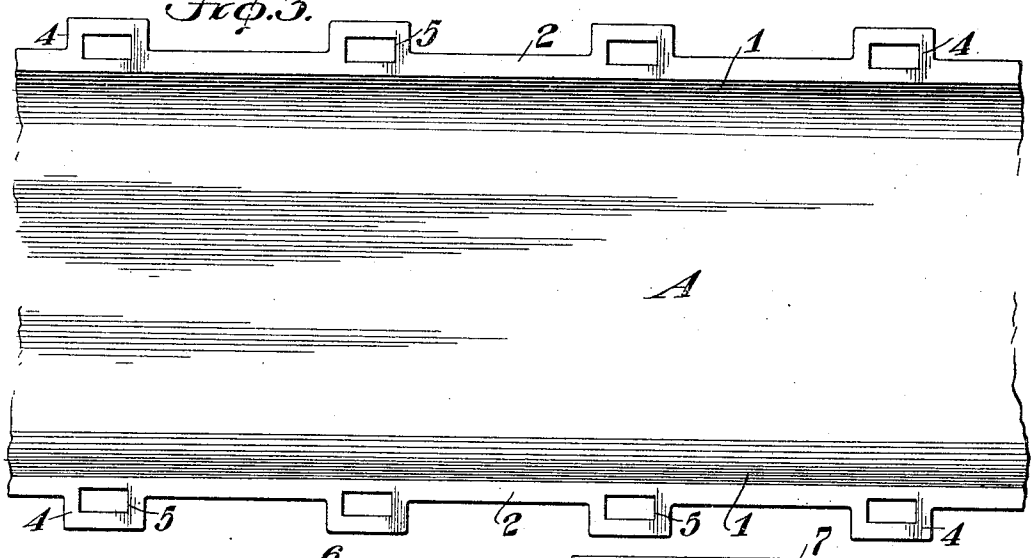


Fig. 4.

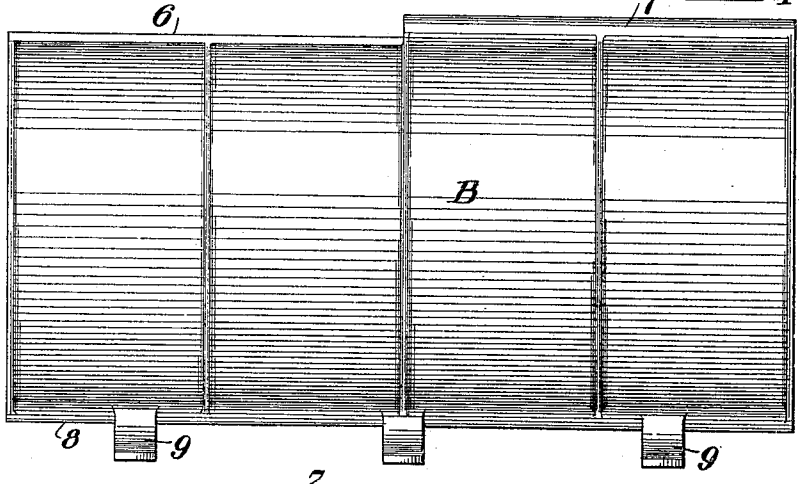
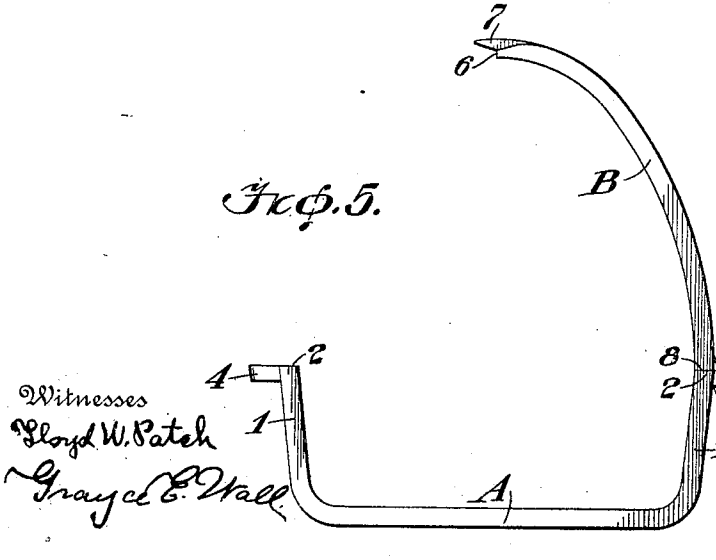


Fig. 5.



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UNITED STATES PATENT OFFICE.

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CULVERT.

960,137. Specification of Letters Patent. Patented May 31, 1910.

Application filed September 2, 1909. Serial No. 515,747.

To all whom it may concern:

Be it known that I, FRANK B. ZIEG, a citizen of the United States, residing at Fredericktown, in the county of Knox and State of Ohio, have invented certain new and useful Improvements in Culverts, of which the following is a specification.

My invention relates to an improvement in metal culverts, and the primary object is to provide a culvert composed of expansibly connected detachable sections, the interior of which will present a tight, smooth and unobstructed surface. At the same time consideration is had for simplicity and economy of structure.

With these objects in view my present invention consists in a sectional culvert, the base section of which has a flat bottom with diverging upturned sides, the upper edges of which are perfectly straight, and out from which protrude slotted lugs flush with the upper edge, in combination with expansible, curved, interlocking sections, the lower edges of which rest upon, engage and fit the upper straight edges of the sides of the lower section, and these upper sections are provided with outwardly inclined, straight tenons adapted to enter the slots or mortises in the lugs. The tenons having outwardly extending projections, which fit beneath and engage the lower edges of the slotted lug whereby the upper sections are held in place on the lower section with the adjacent edges fitting tightly together throughout their entire length.

My invention further consists in certain novel features of construction and combinations of parts which will be hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1 is a transverse vertical sectional view through the entire culvert cutting through one of the mortises and tenons; Fig. 2 is an end view showing the upper sections swung to one side; Fig. 3 is a plan view of the base section; and Fig. 4 is a side elevation of one of the top expansible sections; and Fig. 5 is an end view showing the base section and a single top section in position thereon.

A represents the base section. This is flat on the bottom and provided with divergent sides 1, 1, the upper edges 2, 2 of which are straight throughout their length. At intervals throughout the length of the base section lugs 4, 4 extend outwardly flush with the upper surface of the upper edges of the base section, and in these lugs slots or mortises 5, 5 are formed for the most part outside of the side portions of the base so that the upper edge of the base section is unbroken and its integrity is preserved.

B, B are the detachable expansible sections, that is to say, the sections are capable of spreading. These are curved, preferably, more or less slightly to arch over at the center where they interlock opposite sections, having straight inner edges 6, 6, which engage each other and overlapping interlocking flanges 7, 7. Their lower edges 8, 8 are perfectly straight and are adapted to fit the straight upper edges of the base. Tenons 9, 9 extend diagonally from the outer lower edges of these upper sections B, B, and are adapted to enter the slots or mortises in the lugs of the lower section and the extreme lower ends of these tenons extend outwardly and horizontally in position to engage the lower outer edges of the lugs on the lower section, so that the lower straight edges of these sections resting upon the upper straight edges of the base section coöperate with these projections on the tenons and the lugs to support the upper sections in their normal positions, thereby forming a tight joint of the meeting edges of the sections throughout. Therefore, while these lugs, tenons and projections limit the inward movement of the upper section and insure a tight joint, at the same time they serve as a hinge joint to permit these upper sections to expand or spread, and the construction is such that the upper sections may be swung outwardly even beyond the vertical, in which position they would remain temporarily when occasion may require it in the construction or reconstruction of the culvert. When made in this way my improved culvert is easy and inexpensive to cast, comprises few and simple parts, is inexpensive to manufacture and the parts are easily and quickly assembled and when together form a durable, tight culvert presenting a smooth, unobstructed and unbroken interior, thus preventing leakage or anything to obstruct an even uninterrupted flow therethrough.

More or less slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my inven-

tion and hence I do not wish to limit myself to the exact construction herein set forth, but:

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A culvert comprising a base, and top sections, the base composed of bottom and sides, the sides having lugs extending outwardly flush with the upper edges of the sides of the base, said lugs having slots or mortises formed therein mainly beyond the edge so that sufficient of the edges remain to form tight and unbroken joints, with the top sections, the top sections having tenons, the lower ends of which project outwardly beneath the lugs and in engagement therewith when the sections are in their normal position, and coöperate therewith in supporting the upper sections in their normal position.

2. A culvert comprising a base and top sections, the base section flat on the bottom with diverging sides, the upper edges of which are straight and provided with outwardly extending slotted or mortised lugs flush with the upper edge of the base section, the slots therein formed mainly outside of the upper edge of the base section, and curved, expansible, detachable, interlocking top sections the upper and lower edges of which are straight, the upper edges adapted to fit each other and interlock and the lower edges adapted to fit the upper edges of the base section and provided with tenons extending outwardly from the lower edges whereby the edges themselves are unbroken in position to fit the slots or mortises in the lugs of the lower section and terminating in outwardly extending projections which engage the lower edges of the slotted lugs and coöperate therewith in supporting the upper sections in their normal position.

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

FRANK B. ZIEG.

Witnesses:
R. Y. Struble,
Bertha G. Jones.