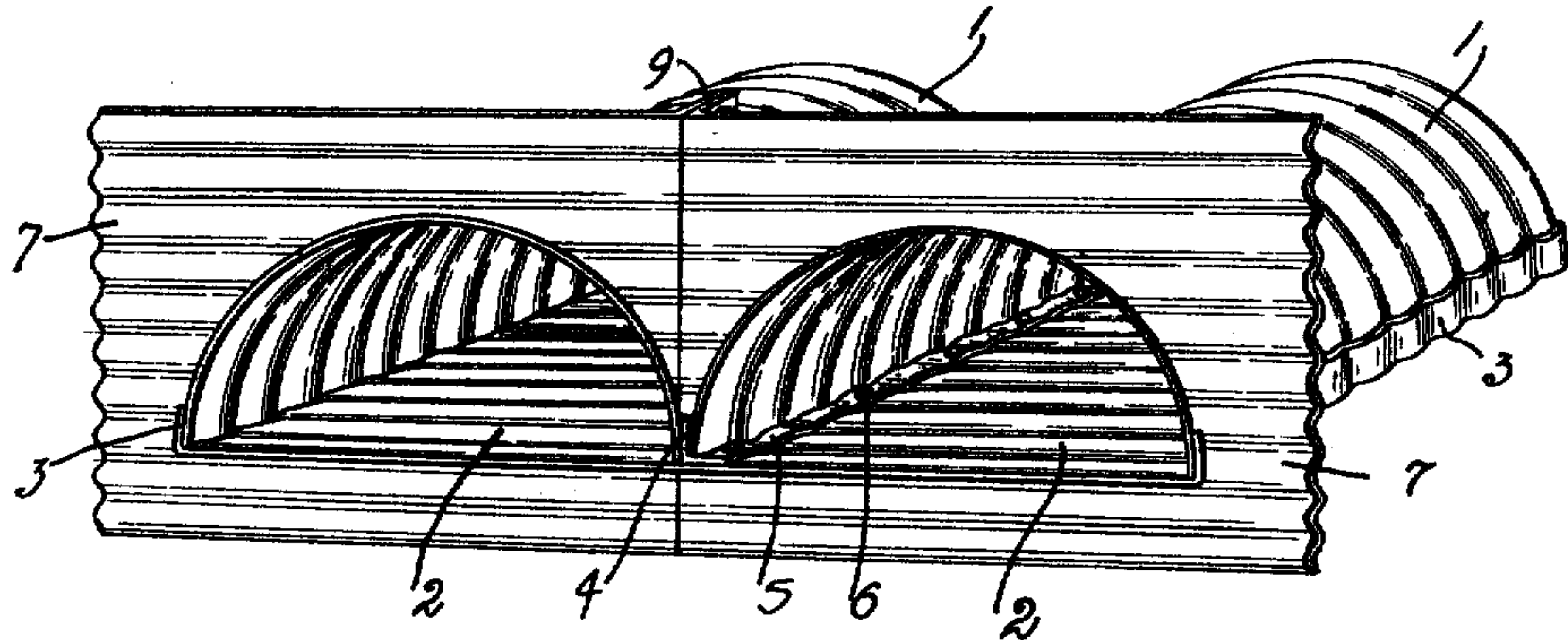


C. A. FOSTER.  
CULVERT STRUCTURE.  
APPLICATION FILED DEC. 19, 1910.

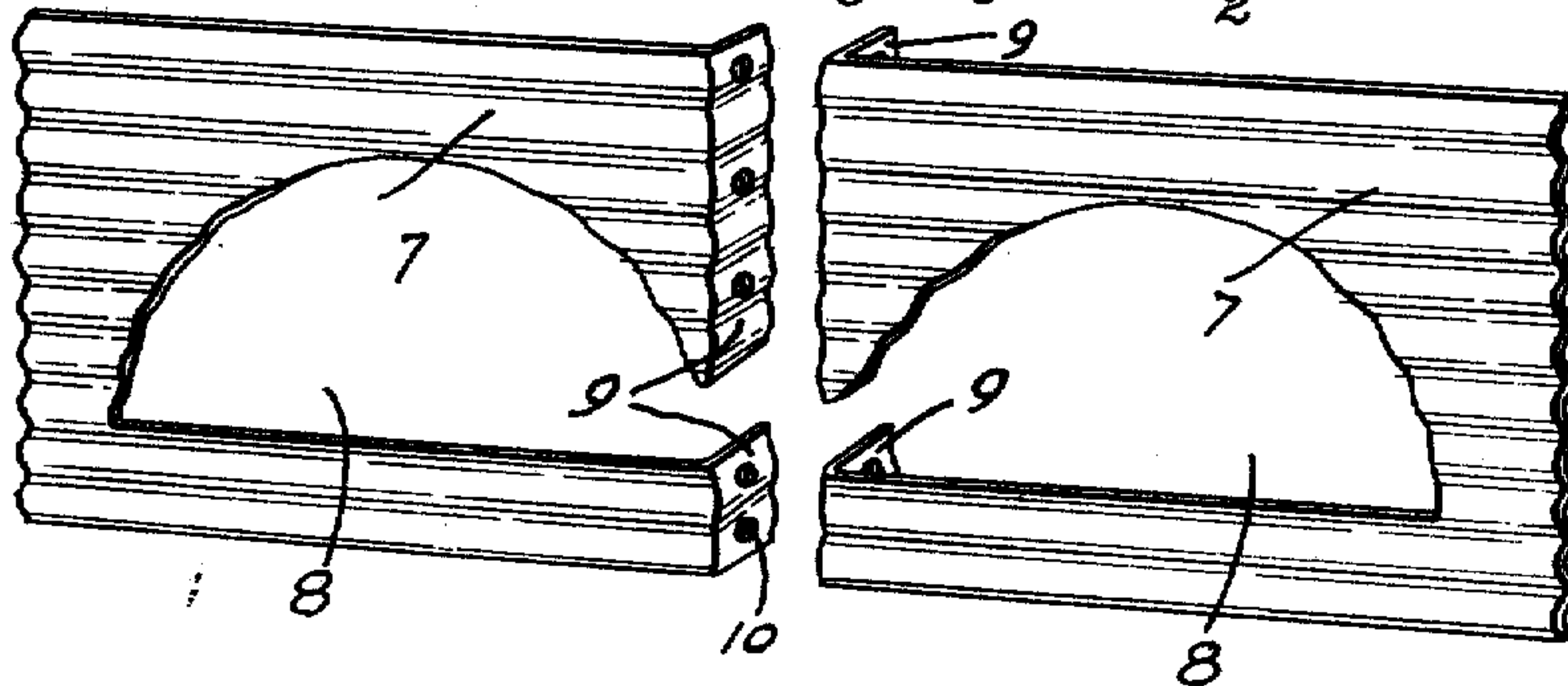
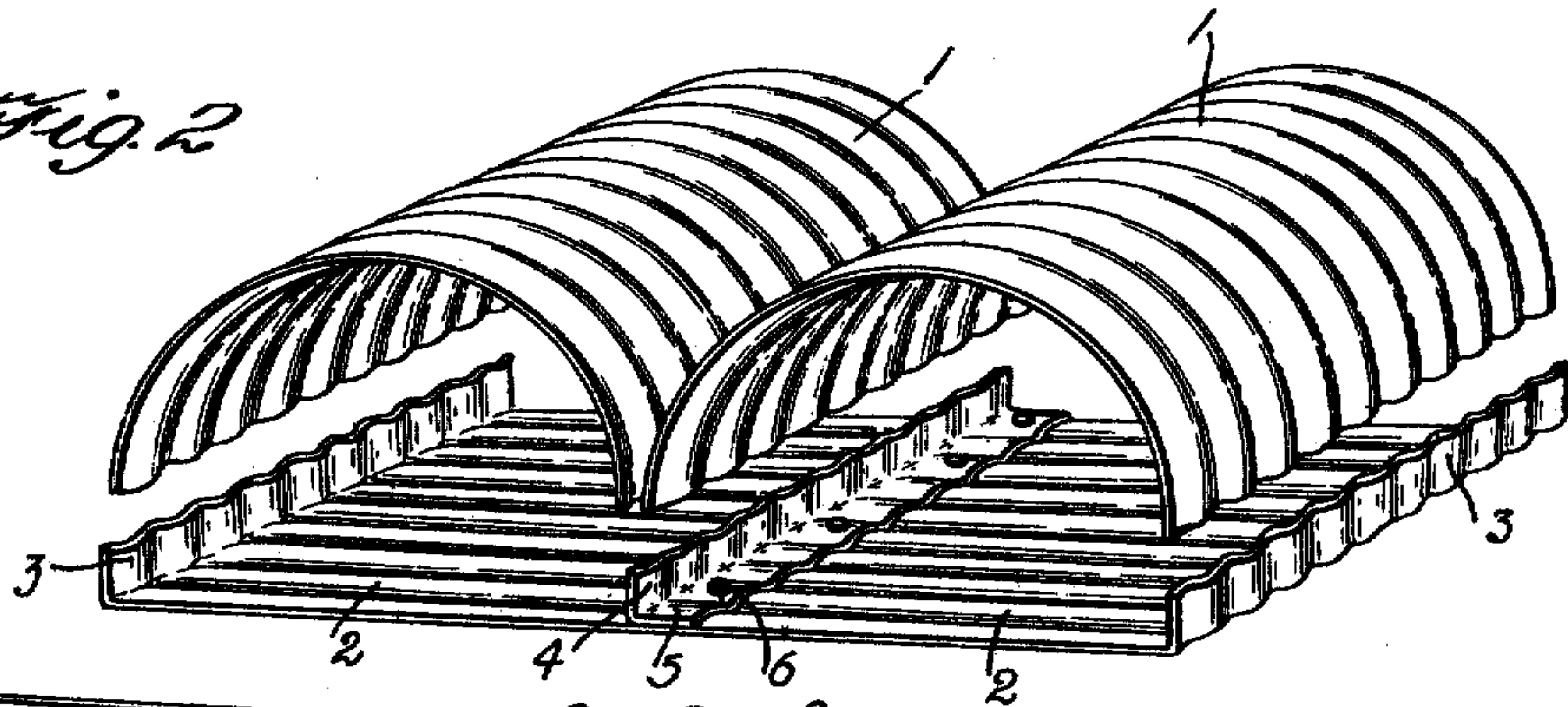
997,382.

Patented July 11, 1911.

*Fig. 1*



*Fig. 2*



*Fig. 3*

Witnesses:-  
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# UNITED STATES PATENT OFFICE.

CHARLES A. FOSTER, OF PORTLAND, OREGON.

## CULVERT STRUCTURE.

997,382.

Specification of Letters Patent.

Patented July 11, 1911.

Application filed December 19, 1910. Serial No. 598,258.

*To all whom it may concern:*

Be it known that I, CHARLES A. FOSTER, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Culvert Structure, of which the following is a specification.

My invention relates to culvert constructions, and has for its object the provision of a culvert in which two or more culvert sections are connected together side by side.

My invention is particularly applicable in cases where a considerable amount of water is to be led under a shallow road-bed. Under these circumstances my new form of culvert construction increases the cross-sectional area of the culvert sections, while the height of the culvert is the same as the height of a single section. Where a culvert is to be laid across a shallow road-bed, the height of the culvert is limited.

My improved culvert construction increases the capacity of a culvert of sufficiently small height to enable its use on a low or shallow road-bed. At the same time this side by side connection of a plurality of sections produces a culvert construction of great mechanical rigidity and strength.

To prevent dirt from being washed around the mouth of the culvert by the action of the water flowing therethrough, I provide my improved culvert construction with an abutment secured to the culvert at the intake end, the construction of the abutment being such that the plates which comprise the abutment fit snugly around the body of the culvert.

In the accompanying drawings, Figure 1 is a perspective view showing one form of my improved culvert construction with an abutment secured in place on the culvert sections. Fig. 2 is a perspective view showing how two sections may be readily mounted side by side on a common base, and Fig. 3 is a view of the abutment plates in disassembled form.

For the sake of illustration, I have in the drawings shown my improved culvert construction as consisting of two sections connected together side by side. It is obvious, however, that the number of sections which may thus be connected together may be varied in accordance with the requirements of a particular case. Thus, for instance, three or more sections may be connected together side by side. Referring to the em-

bodiment illustrated in the drawings, the culvert sections comprise arched upper members 1 and flat base members 2, the latter being in the present instance shown as one integral plate common to both of the sections. The base plate is at its sides provided with up-turned flanges 3 and also with an intermediate flange 4. The flange 4 is shown as forming the vertical portion of an L-shaped strip 5 secured to the base by bolts or rivets 6. The arched upper sections 1 are adapted to be forced into place on the base member between the intermediate flange 4 and the side flanges 3, as shown in Fig. 1. It will be seen that in this way a plurality of culvert sections are rigidly connected together side by side. If only two sections are thus connected the structure may be called a twin culvert. If more than three sections are connected together side by side, the structure may be properly termed a multiple culvert. It is obvious that other means than that shown may be employed for rigidly connecting the sections together side by side. The particular construction which I have illustrated in the drawing represents a preferred, but by no means a necessary, embodiment of my invention.

The abutment which I have shown in connection with the culvert structure illustrated in Figs. 1 and 3, comprises a pair of plates 7 provided with openings 8 of such contour as to snugly embrace the culvert sections. The plates 7 are provided with lateral flanges 9. To attach the abutment to the culvert, the plates are slipped or sprung over the culvert sections whereby the lateral flanges 9 are brought together, as shown in Fig. 1. The flanges are provided with alined openings 10 through which bolts, rivets or other suitable fastening devices are passed, so as to hold the plates rigidly together. The abutment plates, as well as the culvert sections, are preferably constructed of corrugated sheet metal. In this case the complementary abutment plates fit snugly into transversely alined corrugations of the culvert sections, as indicated in Fig. 1 of the drawings. If desired, the abutment may be made of three or more complementary plates. This may be found desirable in cases where more than two culvert sections are connected together side by side. It will, of course, be understood that the desired length of culvert is produced by con-



necting the requisite number of sections end to end in any suitable manner.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

1. A culvert structure comprising a plurality of culvert sections secured together side by side, said sections consisting of base members and arched top members.
2. A culvert structure comprising a base plate having up-turned side flanges and an up-turned intermediate flange, and a pair of arched top members adapted each to engage said intermediate flange and one of said side flanges.
3. In a culvert structure, the combination of a common base member, and a plurality of arched top members secured to said base member side by side.
4. A culvert structure comprising a transversely corrugated base plate having up-turned side flanges and an up-turned intermediate flange, and a pair of arched top members of transversely corrugated sheet metal, adapted each to engage said intermediate flange and one of said side flanges.
5. In a culvert structure, the combination of a common base member and a plurality of arched top members secured to said base member side by side, said base member and said top members being constructed of transversely corrugated sheet metal.
6. In a culvert structure, the combination of a common base member, a plurality of arched top members secured to said base

member side by side, and an abutment secured to said members, said abutment comprising a plurality of complementary plates constructed to fit around the body of the culvert.

7. A culvert structure comprising a plurality of culvert sections secured together side by side, and an abutment secured to said sections, said abutment comprising a plurality of complementary plates constructed to fit around the body of the culvert.

8. In a culvert structure, the combination of a flat base plate and a plurality of arched sections adapted to be mounted on said base plate side by side.

9. A culvert structure consisting of a plurality of transversely corrugated culvert sections rigidly secured together side by side, and an abutment securely mounted on said sections, said abutment comprising a plurality of complementary plates constructed to fit snugly into transversely aligned corrugations of the culvert sections.

10. A culvert structure consisting of a pair of culvert sections having a common flat bottom and a plurality of arched tops, and means for securing said tops side by side to said common bottom.

In witness whereof, I hereunto subscribe my name this 9 day of Dec. A. D. 1910.

CHARLES A. FOSTER.

Witnesses:

GEO. MANKLE,  
A. A. THOMAS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."