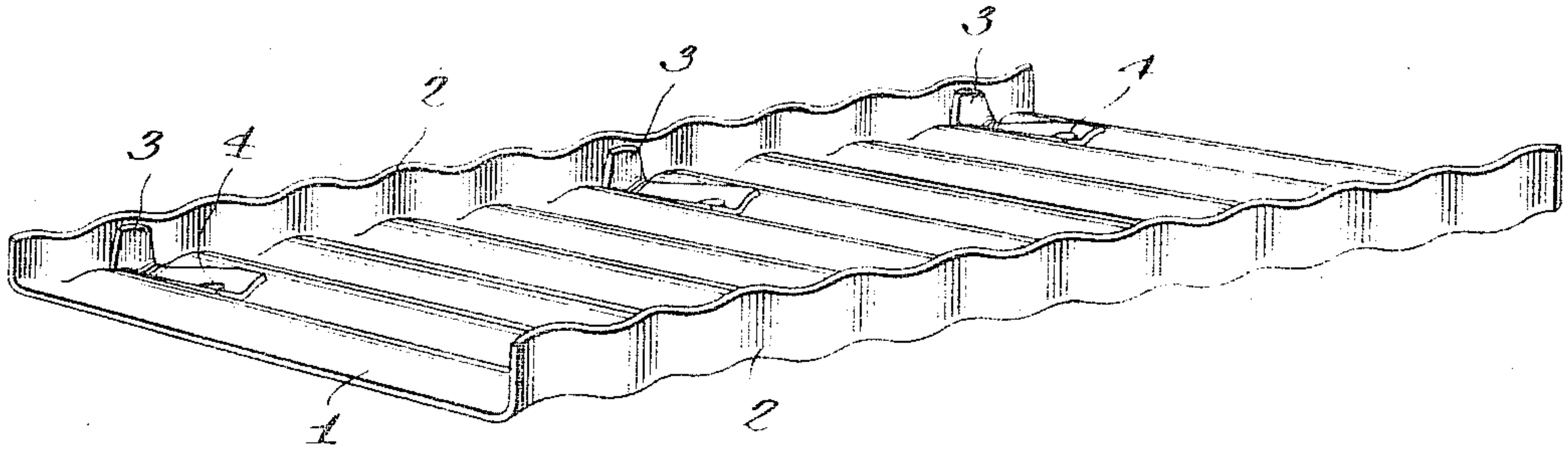


C. A. FOSTER.  
SHEET METAL CULVERT.  
APPLICATION FILED OCT. 20, 1910.

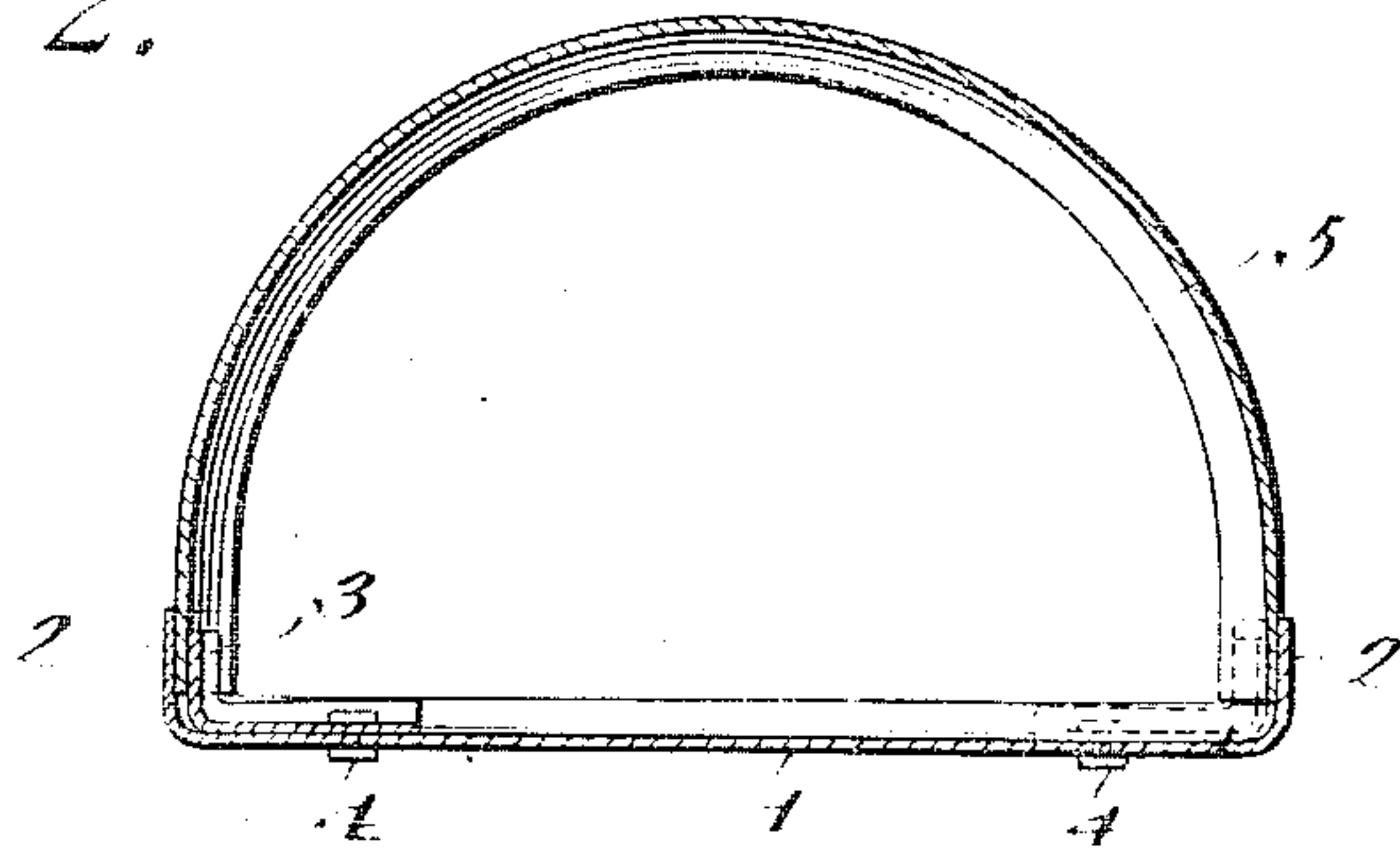
985,738.

Patented Feb. 28, 1911.

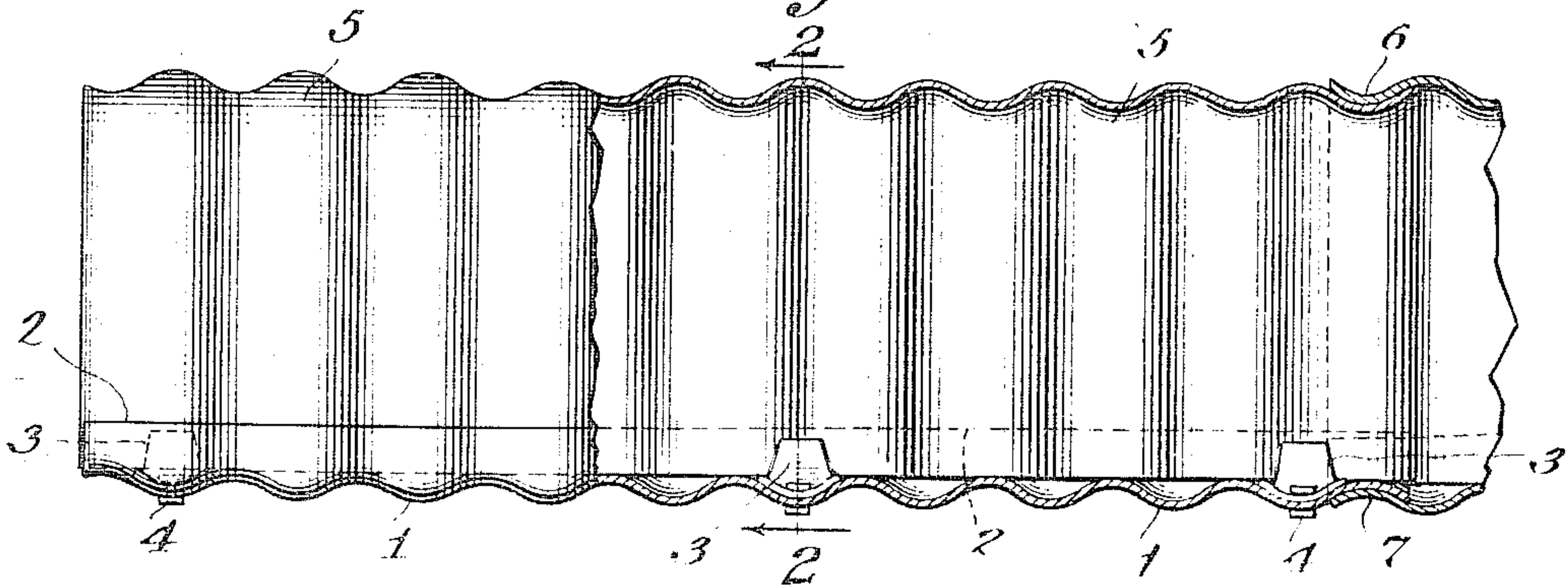
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses:

Geo. Mankle  
A. G. Thomas

Inventor:

Charles A. Foster  
by Wallace R. Lane  
Att'y.



# UNITED STATES PATENT OFFICE.

CHARLES A. FOSTER, OF PORTLAND, OREGON.

## SHEET-METAL CULVERT.

985,738.

Specification of Letters Patent.

Patented Feb. 28, 1911.

Application filed October 20, 1910. Serial No. 588,058.

*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 Improvement in Sheet-Metal Culverts, of which the following is a specification.

The object of my invention is to provide a sheet metal culvert, preferably corrugated, comprising flat lower sections and arched top sections, special means being provided for readily connecting the arched upper sections with the flat lower sections.

In the accompanying drawings: Figure 1 is a view in perspective of one of the flat sections. Fig. 2 is a cross-sectional view of my improved culvert showing the sections assembled; and Fig. 3 is a side view of my improved culvert, a portion being broken away to show the interior parts.

The lower section 1 is flat and may be said to be in the form of a plate provided with upturned longitudinal flanges 2. In the particular embodiment shown in the drawings, the plate 1 is provided with a plurality of retaining members 3 secured to the plate or lower section by bolts or rivets 4. These retaining members are shown as L-shaped, the vertical portions thereof being spaced from the flanges of the lower section. The upper section 5 is substantially semi-circular, and may be called arch-shaped. In order to assemble the upper and lower sections it is only necessary to bring the upper sections down over the lower sections so that the edges of the lower section will slide into the space between the retaining members and the upturned flanges of the lower section, as clearly indicated in Fig. 2. In this way the sections are firmly held together by frictional engagement. To increase the strength of the culvert the sections are preferably corrugated, as shown in the drawings. In order to provide a space of uniform width between the retaining members and the corrugated side flanges of the lower sections, the upturned portions of the retaining members are curved to correspond with the opposite curvature of the corrugations in the side flanges. This is clearly indicated in Fig. 1.

It will, of course, be understood that in making up a culvert of the sections as above described, a plurality of pairs of such sections may be used until a culvert of the desired length is produced. Any suitable

means may be resorted to for holding the adjacent pairs of sections together. In Fig. 3 I have shown the adjacent upper sections overlapping at 6 and the adjacent lower sections overlapping at 7. This will ordinarily be sufficient to prevent the sections from moving apart, but if desired additional fastening means, such as bolts or rivets, may be used.

Although I have shown the retaining members as secured to the flat lower section, it is apparent that they may be secured to the upper section, in which case the upturned flanges of the lower section would be received in the space between the retaining members and the arched upper sections to which they are secured. However, as a matter of preference, I have shown and described the retaining members as secured to the lower sections.

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

1. In a culvert, a flat lower section provided with upturned side flanges, a plurality of retaining members secured to said section and spaced apart from said flanges, and an arched upper section adapted to be held between said flanges and retaining members when the sections are assembled.

2. In a sheet metal culvert, a flat lower section corrugated transversely and provided with upturned flanges, a plurality of retaining members secured to said section and spaced apart from said flanges, said members being shaped to provide a space of uniform width between the same and said side flanges, and a corrugated arched upper section adapted to be held between said flanges and retaining members when the sections are assembled.

3. In a sheet metal culvert, a flat lower section provided with upturned side flanges, a plurality of retaining members secured to the base of said section and spaced apart inwardly from said flanges, and an arched upper section adapted to be held between said flanges and retaining members when the sections are assembled.

4. In a sheet metal culvert, a flat lower section corrugated transversely and provided with upturned side flanges, a plurality of retaining members secured to the base of said section and spaced inwardly from said flanges, the said members being shaped to provide a space of uniform width



between the same and the side flanges, and a corrugated arched upper section adapted to be held between said flanges and retaining members when the sections are assembled.

5 5. A sheet metal culvert structure, comprising a flat lower section, an arched upper section, and retaining members secured to one of said sections near the longitudinal edges thereof and spaced apart from said  
10 edges to receive the longitudinal edges of the other section, whereby said sections are firmly clamped together by said retaining members.

15 6. A sheet metal culvert structure comprising a flat lower section, an arched upper section, said sections being transversely

corrugated, and retaining members secured to one of said sections near the longitudinal edges thereof and spaced apart from said edges to receive the longitudinal edges of the other section, said members being shaped to provide a space of uniform width between the same and the adjacent edges, whereby said sections are firmly clamped together by said retaining members. 20

In witness whereof, I hereunto subscribe my name this 8th day of September, 1910. 25

CHARLES A. FOSTER.

Witnesses:

L. B. REEDER,  
GEO. W. CALDWELL.