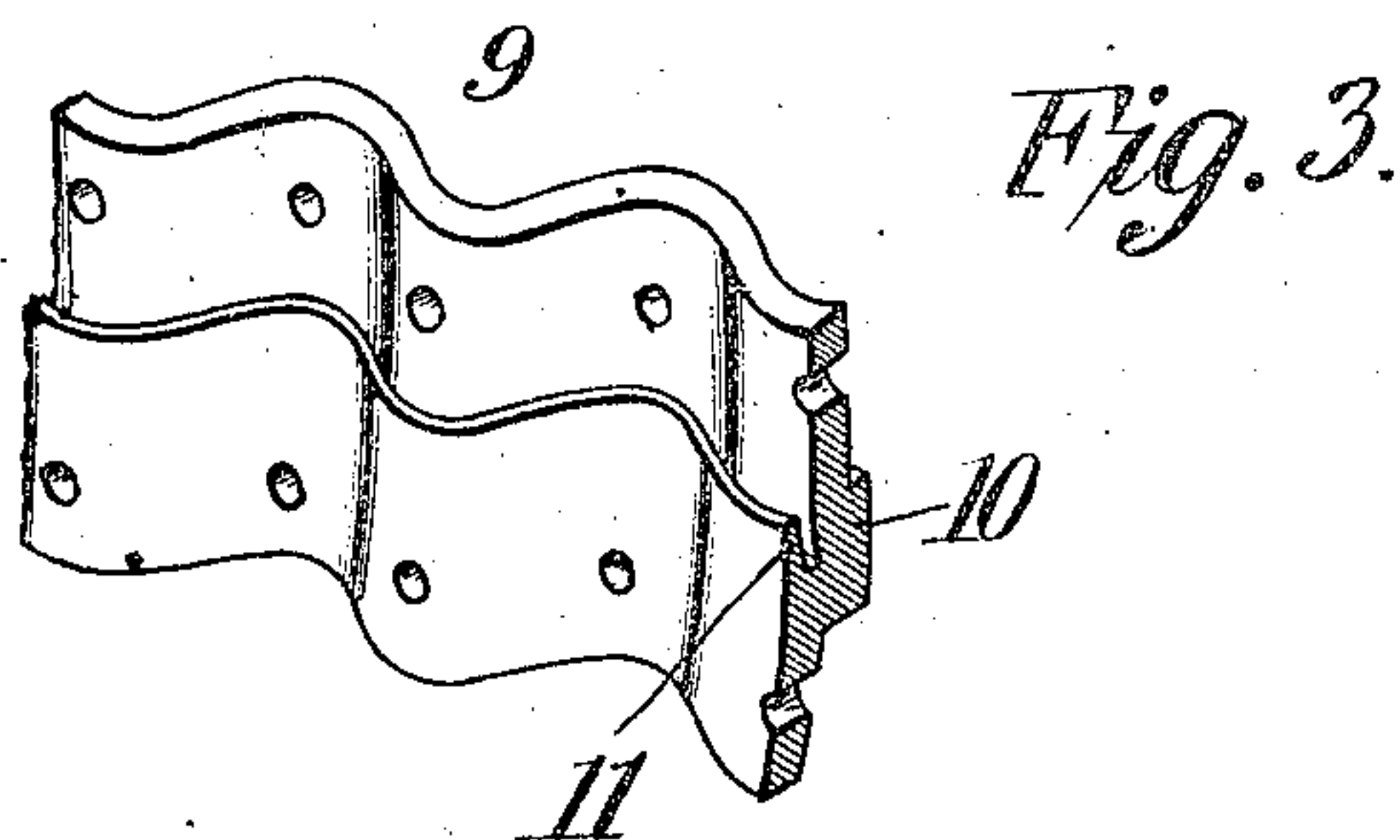
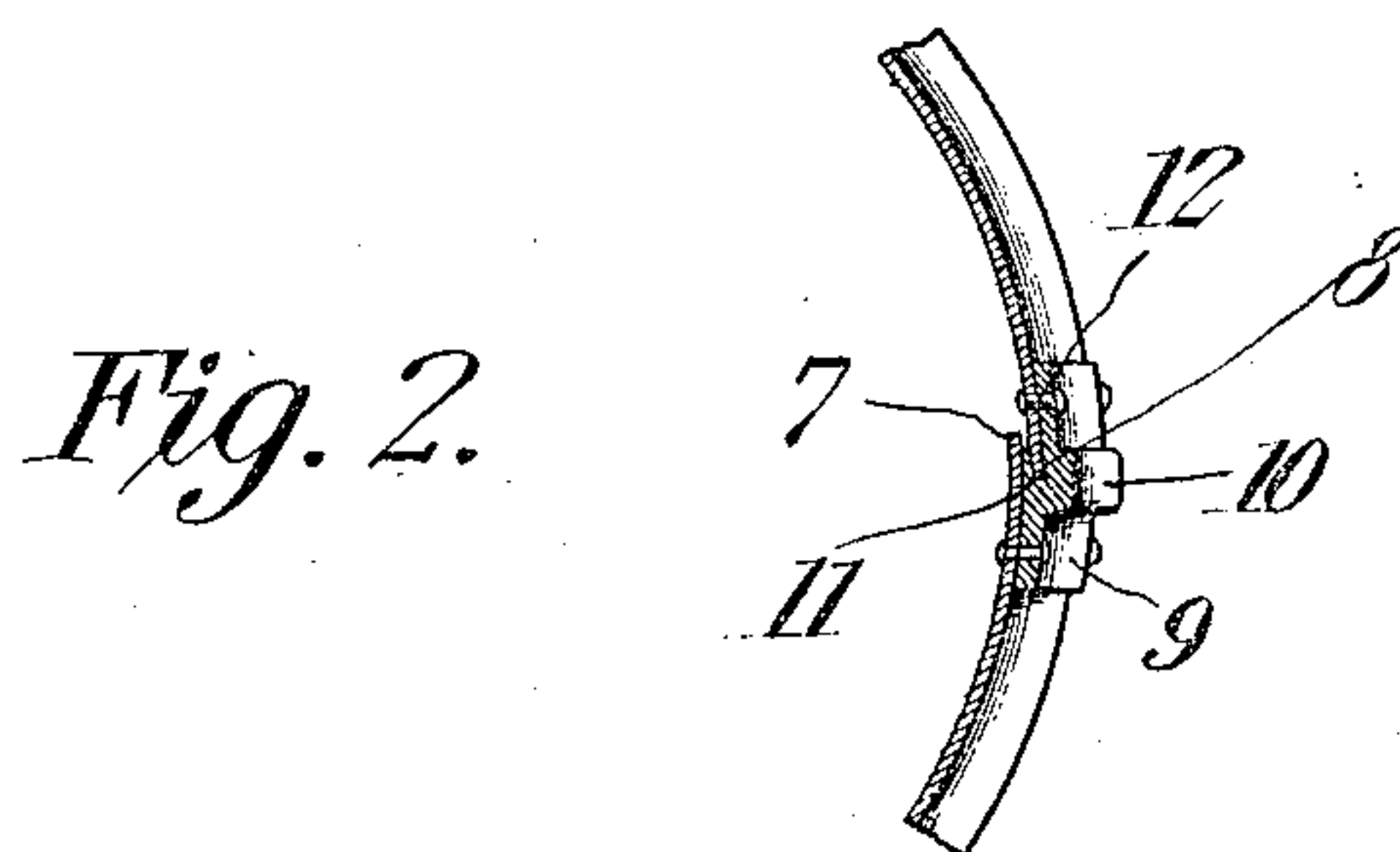
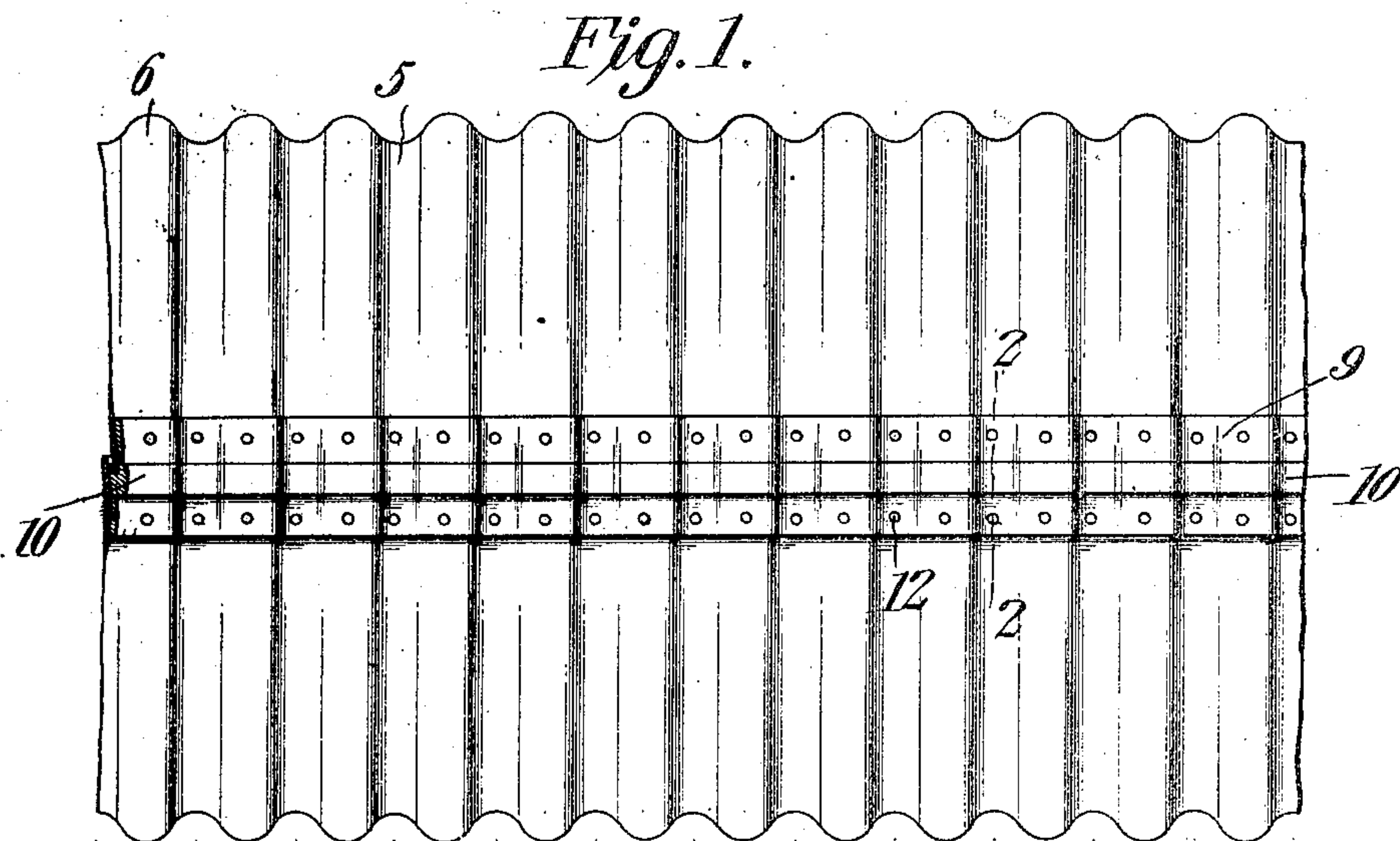


No. 861,002.

PATENTED JULY 23, 1907

C. D. VORIS.  
CORRUGATED METAL CULVERT.  
APPLICATION FILED APR. 29, 1907.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CLIFFORD D. VORIS, OF CRAWFORDSVILLE, INDIANA, ASSIGNOR TO FLORA M. VORIS, OF CRAWFORDSVILLE, INDIANA.

## CORRUGATED METAL CULVERT.

No. 861,002.

Specification of Letters Patent.

Patented July 23, 1907.

Application filed April 29, 1907. Serial No. 370,881.

To all whom it may concern:

Be it known that I, CLIFFORD D. VORIS, a citizen of the United States, residing at Crawfordsville, in the county of Montgomery and State of Indiana, have invented a new and useful Corrugated-Metal Culvert, (Case C.) of which the following is a specification.

This invention relates to sheet metal culverts of that general class especially designed for use beneath railway tracks, road-ways and the like or in the construction of sewers, well-curbings, conduits and similar structures.

A further object of the invention is to provide a culvert section having its adjacent longitudinal edges over-lapped and riveted or otherwise rigidly secured to a connecting strip thereby to form a water tight joint at the juncture of said edges.

A further object is to provide a corrugated connecting strip having a seating recess formed in one face thereof for the reception of the adjacent edge of the culvert section and having its opposite face provided with a longitudinal reinforcing rib which imparts additional rigidity to the culvert and assists in preventing the latter from buckling.

A still further object is to generally improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a side elevation of a culvert section constructed in accordance with my invention; Fig. 2 is a transverse sectional view taken on the line 2-2 of Fig. 1. Fig. 3 is a detail perspective view of a portion of the connecting strip.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The improved culvert consists of a plurality of sections of any desired length and cross-sectional diameter and each preferably formed of a single sheet of metal or other suitable material bent into substantially cylindrical shape and provided with spaced circumferential corrugations 6. The adjacent longitudinal edges 7 and 8 of the culvert section are united by a longitudinal connecting strip 9 which preferably extends the entire length of the culvert section and is corrugated transversely to conform to the corrugations in the body of the culvert.

The outer face of the connecting strip 9 is provided with a longitudinal reinforcing rib or flange 10 while the inner face thereof is provided with a continuous seating groove or recess 11 adapted to receive the ad-

jacent edge 8 of the culvert section thereby to form a stop shoulder and assist in preventing accidental displacement of said edge. The rib 10 not only serves to reinforce the connecting strip and impart additional rigidity to the culvert section but also strengthens the metal at the seating recess 11 so as to prevent injury to the connecting strip in case water freezes in the culvert. The upper portion of the inner face of the connecting strip 9 is off-set with respect to the lower inner face thereof so as to permit the longitudinal edge 7 of the culvert to over-lap the edge 8, said edges being riveted, bolted or otherwise rigidly secured to the connecting strip, as indicated at 12.

Attention is here called to the fact that the corrugations in the connecting strip conform to and interlock with the corrugations 6 in the body portion thereby to permit the edges to be united without the necessity of straightening said edges which is necessary when a lap joint is formed or where a flat strip or angle bar is employed for uniting said edges. It will also be observed that each longitudinal edge of the culvert is rigidly secured to the connecting strip independently of the opposite edge thereof while the flanges on each side of the central corrugated rib 10 serve to reinforce and strengthen the adjacent edges of the body portion or culvert.

If desired, the connecting strip instead of being formed of a continuous length of metal may be formed in sections and the longitudinal edges of the culvert instead of being over-lapped may terminate flush with each other. It will also be understood that the connecting strip may be arranged either on the inside or outside of the culvert and that if desired a seating groove may be formed in the connecting strip for the reception of each end of the culvert section.

From the foregoing description it will be seen that there is provided an extremely simple, inexpensive and efficient device admirably adapted for the attainment of the ends in view.

Having thus described the invention what is claimed is:

1. A culvert section having its adjacent longitudinal edges over-lapped and a connecting strip uniting said edges and provided with a longitudinal reinforcing rib.

2. A culvert section including a circumferentially corrugated body portion and a reinforcing strip connecting the adjacent longitudinal edges of the culvert section and corrugated to conform to the corrugations in the body portion.

3. A culvert section including a split body portion, a reinforcing strip connecting the adjacent longitudinal edges of said body portion and having a seating groove formed therein for the reception of one of said edges, and fastening devices piercing the longitudinal edges of the culvert section and connecting strip, respectively.

4. A culvert section including a circumferentially corrugated body portion, a reinforcing strip connecting the ad-



adjacent longitudinal edges of the culvert section and corrugated to conform to the corrugations in the body portion, and fastening devices piercing the adjacent edges of the body portion and connecting strip, respectively.

5 5. A culvert section including a split body portion, a connecting strip uniting the adjacent longitudinal edges of the body portion and provided with a corrugated longitudinal reinforcing strip, and fastening devices piercing the edges of the culvert section and the connecting strip on  
10 each side of the reinforcing rib.

6. A culvert including a circumferentially corrugated body portion, a connecting strip having a centrally disposed longitudinal reinforcing rib and opposite transversely corrugated flanges adapted to bear against the correspondingly corrugated edges of the culvert section, and  
15 fastening devices piercing said edges and flanges, respectively.

7. A culvert section including a circumferentially corrugated body portion, a connecting strip having its inner  
20 face provided with a longitudinal seating recess for the reception of the adjacent longitudinal edge of the body portion, a reinforcing rib formed on the outer face of the connecting strip, and fastening devices piercing the connecting strip and adjacent edges of the body portion on each  
25 side of the rib.

8. A culvert section including a substantially cylindrical

body portion, a strip connecting the adjacent longitudinal edges of the body portion and having its inner face provided with an off-set and its outer face formed with a longitudinal reinforcing rib, there being a seating recess  
30 formed in the off-set face of the connecting strip at said rib for the reception of one longitudinal edge of the body portion, and fastening devices piercing the connecting strip and the adjacent longitudinal edges of the body portion, respectively.

9. A culvert formed of a single piece of metal bent into substantially cylindrical shape and provided with circumferential corrugations, a strip connecting the adjacent longitudinal edges of the body portion, and corrugated transversely to conform to the corrugations in the body portion,  
40 said strip being provided with a laterally extending reinforcing rib also corrugated transversely, and fastening devices piercing the adjacent longitudinal edges of the body portion and the connecting strip, respectively.

In testimony that I claim the foregoing as my own, I  
45 have hereto affixed my signature in the presence of two witnesses.

CLIFFORD D. VORIS.

Witnesses:

WILLIAM T. WHITTINGTON,  
ROBERT H. WILLIAMS.