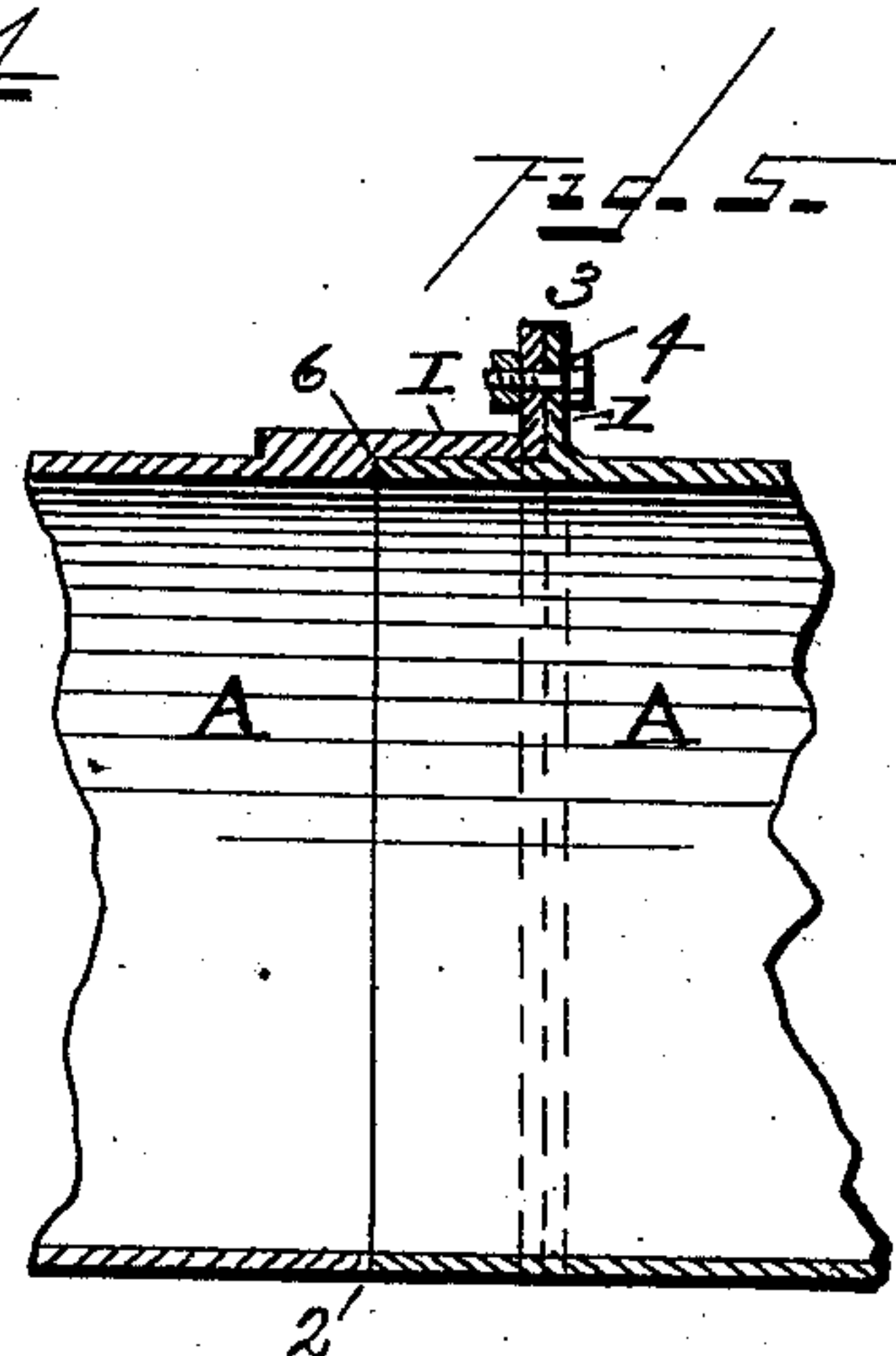
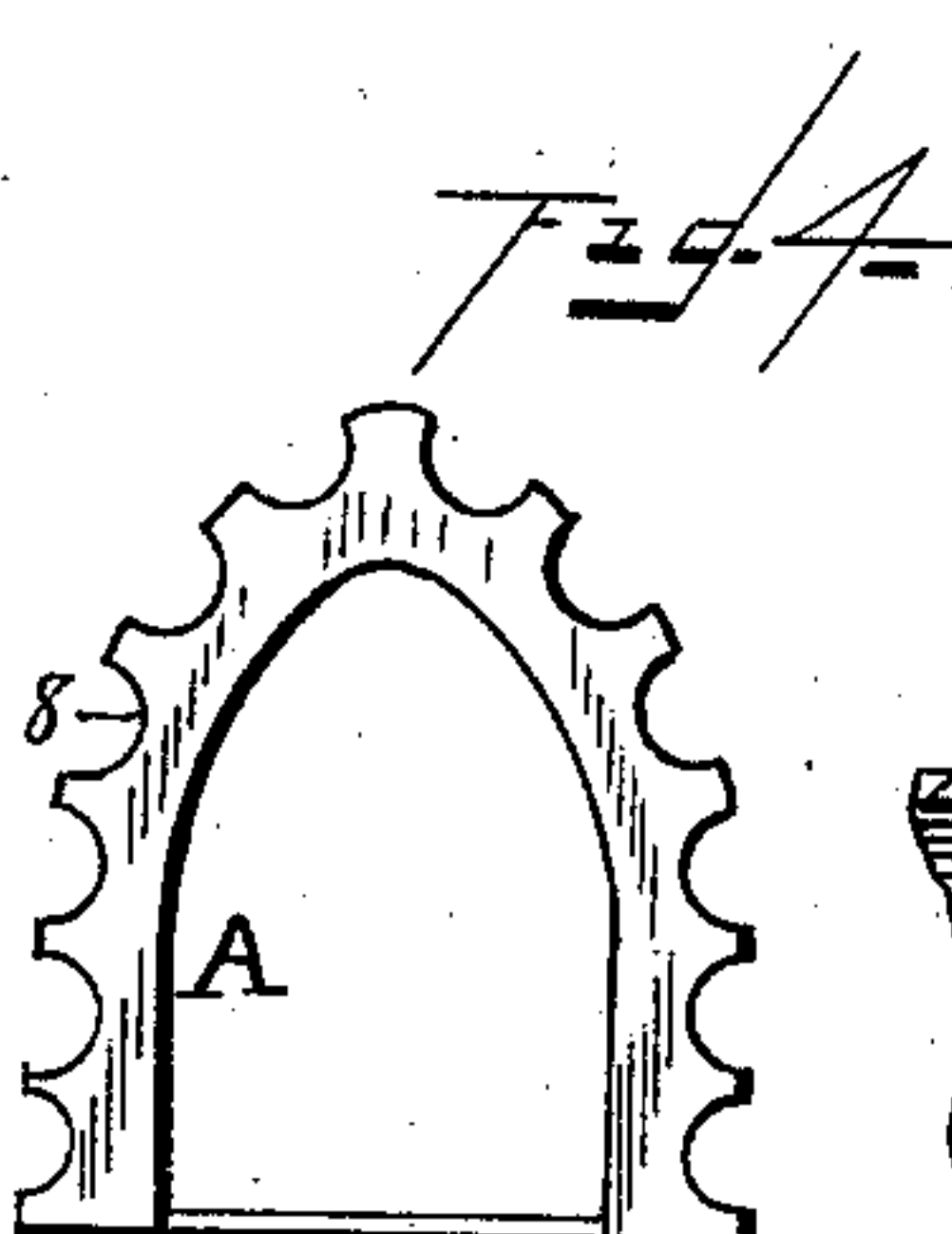
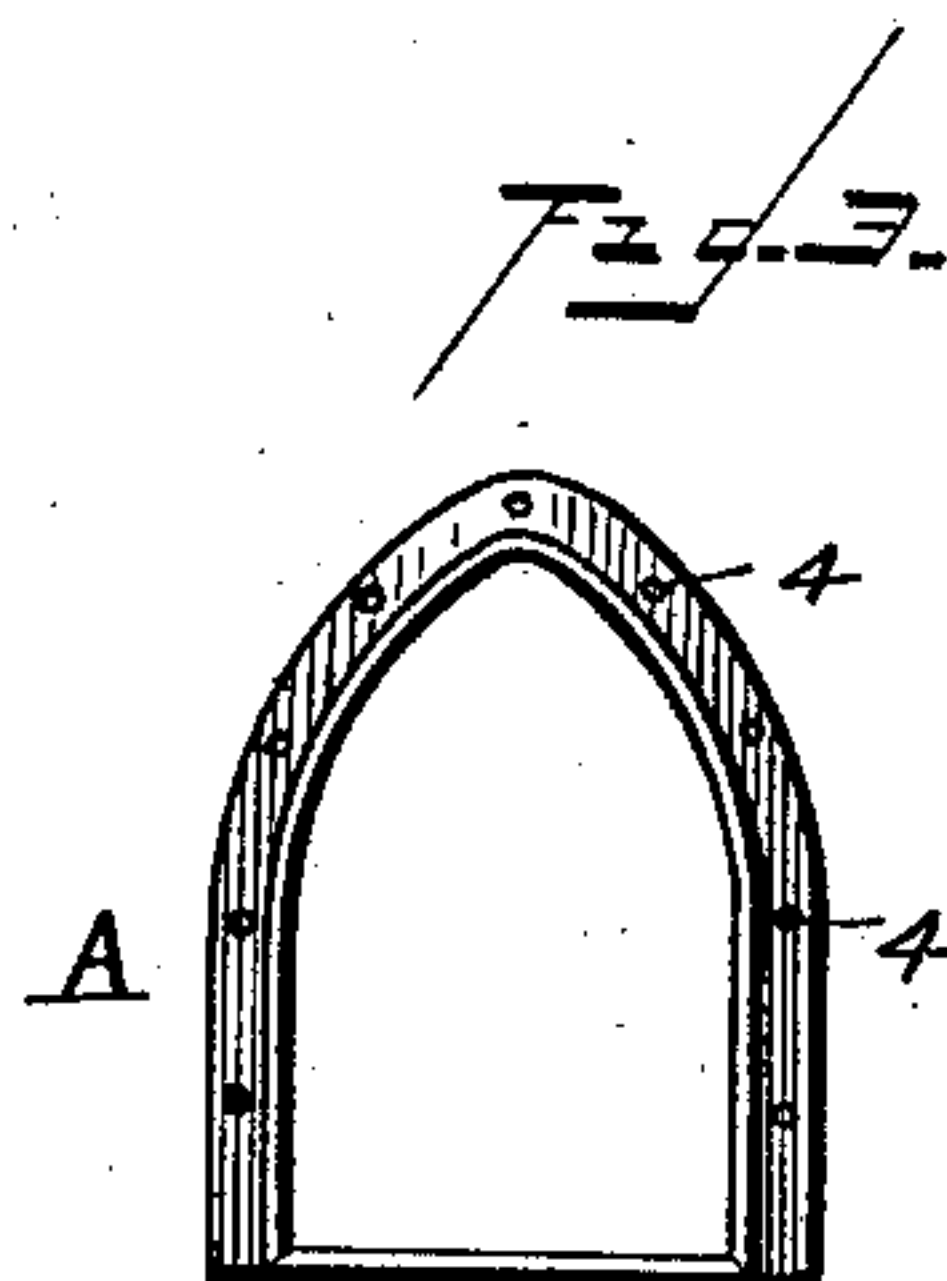
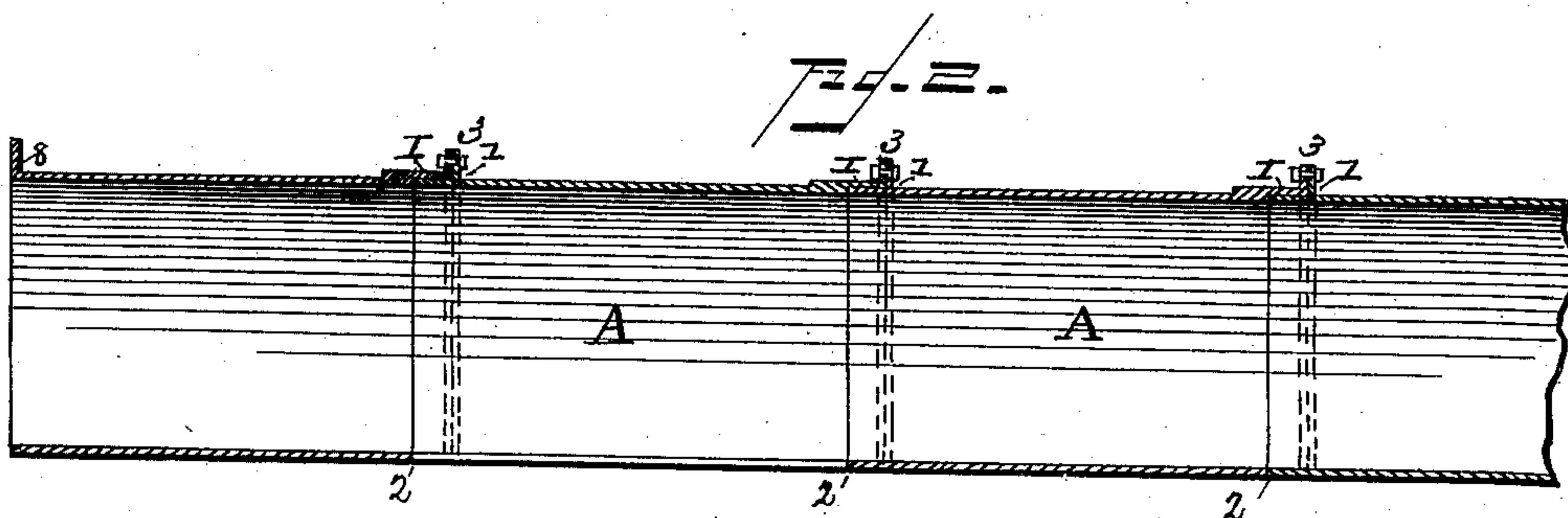
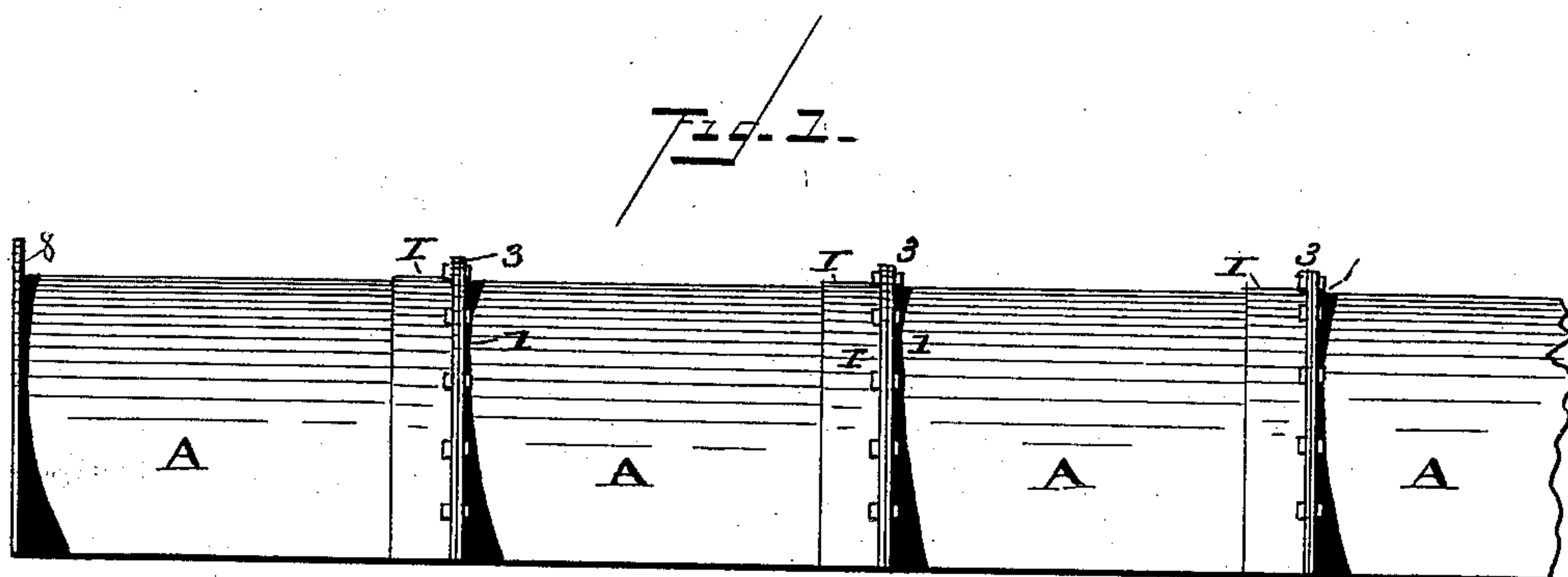


(No Model.)

C. F. MABIS.  
CULVERT OR DRAIN TILE.

No. 393,840.

Patented Dec. 4, 1888.



WITNESSES,  
F. L. Curand,  
A. G. Huffman,

INVENTOR,  
C. F. Mabis,  
By J. M. Yznaga,  
Attorney,

# UNITED STATES PATENT OFFICE.

CHARLES F. MABIS, OF ADAIR COUNTY, (NEAR GREEN TOP,) MISSOURI.

## CULVERT OR DRAIN-TILE.

SPECIFICATION forming part of Letters Patent No. 393,840, dated December 4, 1888.

Application filed July 14, 1888. Serial No. 279,928. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. MABIS, a citizen of the United States, residing in the county of Adair, (near Green Top,) State of Missouri, have invented certain new and useful Improvements in Culverts or Drain-Tiles; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention has relation to culverts or conduits for conveying water; and the object is to provide a metal culvert formed in sections joined together by particular means, so as to form a continuous integral line of the shell.

In the drawings, Figure 1 is a side view, in elevation, of a line of the culvert. Fig. 2 is a vertical central longitudinal view. Fig. 3 is a detail view of the meeting ends of the sections. Fig. 4 is an end view of the terminal end of the culvert, showing a scalloped flange terminating the section. Fig. 5 is a central longitudinal section of the meeting ends of two sections of the line of culvert.

Reference being had to the drawings, A designates the sections, which, being united, constitute the culvert. The shell of the section consists of an angular body having an arched roof, and may be either of cast metal or in small constructions of sheet metal made up into the requisite conformations. On one end of the sections is formed a projecting end flange, I, which extends about the sides of the section and over the arched top, leaving the bottom open, as at 2. This end flange, I, has its edge 3 struck at right angles to line of the culvert and formed with bolt-holes 4, through which the fastening-bolts are projected. The end of the shell proper stops short of the flange, forming a shoulder, as at 6, against which the end of the next section abuts when the two are arranged in position. The other or opposite end of the section, or of the sections, which connects with the end having the projecting flange enters the end flange and abuts against the end of the adjacent section, and in order that it may be firmly and conveniently secured in place a flange, 1, is formed on the exterior of the shell,

which flange is a counterpart of the angular flange on the other section, and being formed with bolt-holes registering with those in the other section, the faces of these flanges set together and the bolts being projected through them and secured by nuts, the sections are fastened together.

The terminal ends of the line of culvert may be formed with broad flanges 8, which may be of any design desired.

The parts are united, as above indicated, by setting the ends together with the flanges abutting and then inserting the fastening-bolts.

I thus provide a substantial and durable culvert or conduit, one which may be easily laid in position and readily removed or repaired. The construction is particularly applicable to drainage, the line of metal pipes being a substitute for the common drain-tile.

It will be perceived by inspection of the drawings, specially Figs. 3 and 4, that the drain consists of a flat bottom sustaining vertical sides, supporting what is substantially a "lancet-arch," which produces the best possible form for sustaining the covering and resisting all the pressure which the device may be subject to.

While I am aware that it is not new to make structures with lancet-arches sustained by vertical supports, I believe that my invention embraces the novelty of making a drain-tile or culvert-pipe consisting of bottom and sides and arched top integral and divided into sections longitudinally, adapted to be united, as shown and described.

What I claim is—

The culvert or drain-tile herein described, consisting of metal sections having rectangular bottom and sides and substantially a lancet-arched top, each section at one end being formed with the sides and arch projecting beyond the bottom edge and terminating in an outward flange, and at the opposite end of the section formed with a flange on the outside of the section and adapted to abut the flange of the opposite section, substantially as described.

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

CHARLES F. MABIS.

Witnesses:

H. E. PATTERSON,  
WILBUR L. SMITH.