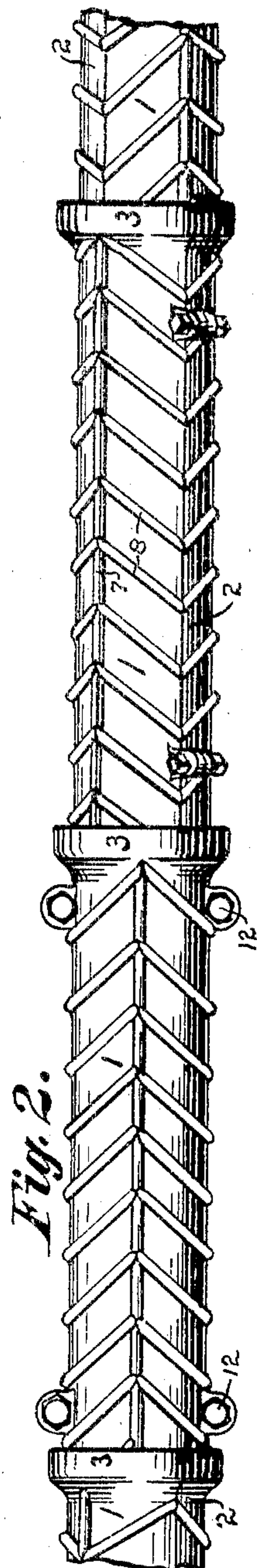
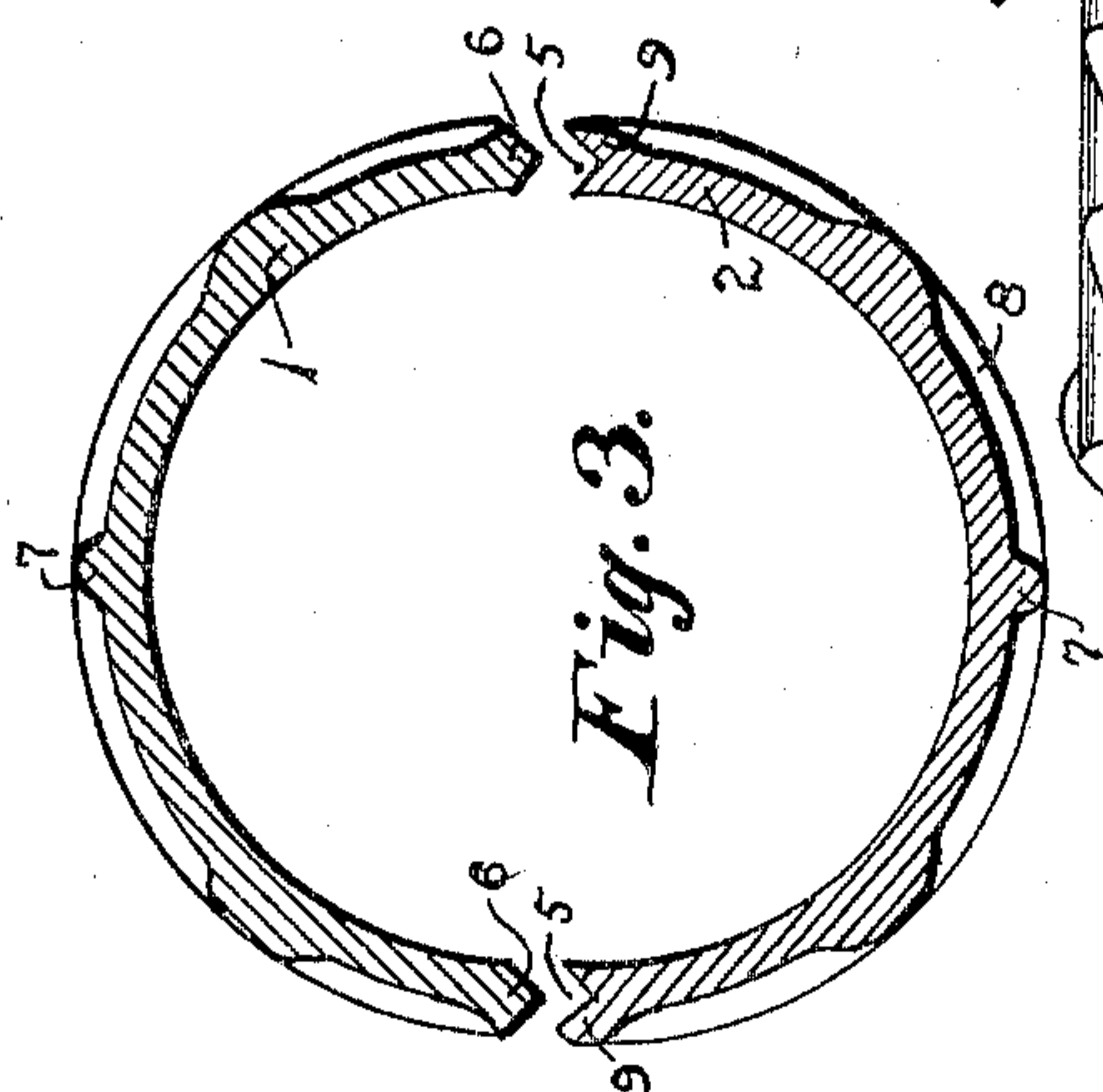
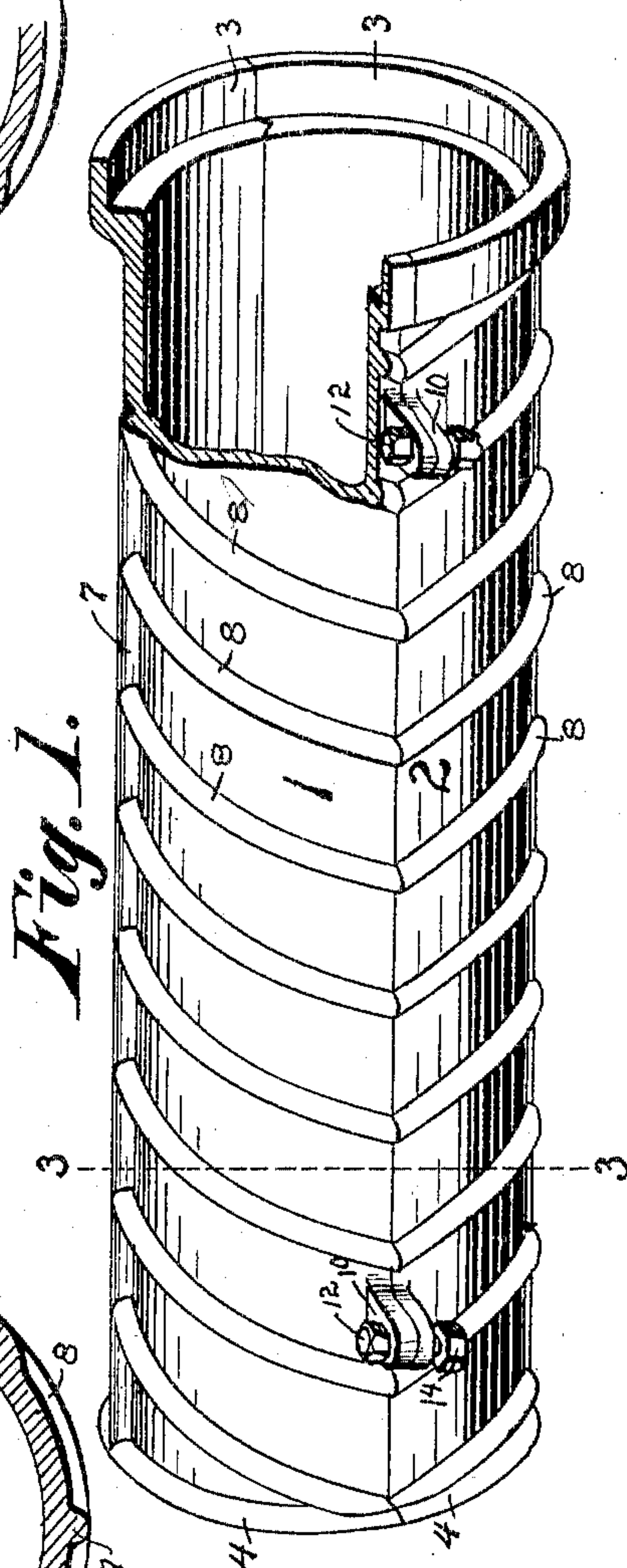
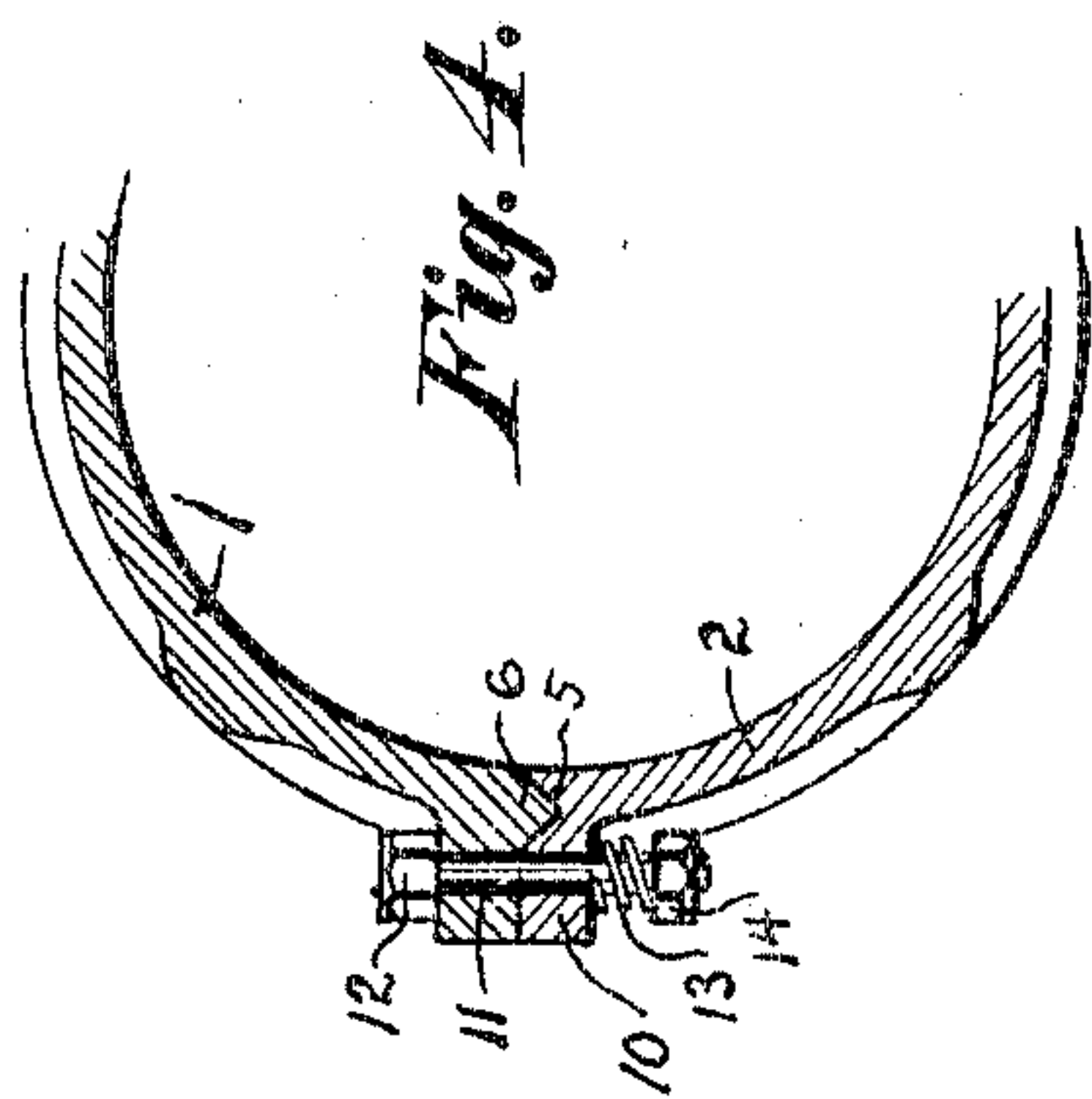


No. 780,152.

PATENTED JAN. 17, 1905.

D. C. BOYD.
CULVERT.

APPLICATION FILED AUG. 18, 1904.



WITNESSES

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DAVID C. BOYD, OF ORRVILLE, OHIO.

CULVERT.

SPECIFICATION forming part of Letters Patent No. 780,152, dated January 17, 1905.

Application filed August 18, 1904. Serial No. 221,197.

To all whom it may concern:

Be it known that I, DAVID C. BOYD, a citizen of the United States, residing at Orrville, in the county of Wayne and State of Ohio, have invented certain new and useful Improvements in Culverts; and I do hereby declare that the following is a clear, full, and exact description of the same, reference being had to the annexed drawings, making a part of the specification, and to the figures of reference marked thereon, in which—

Figure 1 is a view showing a section of the culvert and illustrating the same partially broken. Fig. 2 is a view showing two full sections properly connected together and the portion of two sections. Fig. 3 is a transverse section on line 3 3, Fig. 1, except the section-halves are shown detached from each other. Fig. 4 is a sectional view showing the culvert members properly connected together.

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

In the accompanying drawings, 1 and 2 represent the culvert members, which are properly formed semicircular in cross-section, and when placed in proper position with reference to each other the members constitute a culvert-section. One end of each member 1 and 2 is provided with the flange 3, which flange is so formed that when the members are placed in proper position said flanges will constitute a socket to receive the end of an adjacent section. The end of the section proper opposite the flanged end is provided with the bead 4, which bead is seated into the socket portion of an adjacent culvert-section.

The culvert-sections 2 are provided with the grooves 5 and the sections 1 provided with the beveled tongues 6, which tongues are seated in the grooves 5, as illustrated in Fig. 4, when the sections 1 and 2 are placed in proper relative position.

For the purpose of reducing the weight of the culvert members 1 and 2 and at the same time giving said members the desired amount of strength for the purpose designed the members are provided with the longitudinal ribs 7, from which longitudinal ribs extend the

ribs 8, said ribs being preferably located at an angle to a line perpendicular to said longitudinal ribs.

In order to provide sufficient metal to produce the grooves 5 of sufficient size, the culvert members 2 are provided with the thickened portions 9, which thickened portions 9 are located upon the outer side or surface of said culvert member 2, by which arrangement the inner surface of the culvert is formed without obstructions and presents a smooth and even surface.

For the purpose of uniting the longitudinal members 1 and 2 together each member is provided with two or more flanges 10, which flanges are provided with suitable apertures 11, through which apertures the clamping-bolts 12 are passed.

For the purpose of providing for expansion, thereby allowing the members 1 and 2 to come and go from each other at their longitudinally-joined edges, the springs 13 are provided, which springs are located between the nuts 14 and the face of the flanges 10, as best illustrated in Fig. 4.

It will be understood that by forming the sections of the culvert in halves or divided members said members can be conveniently cast and said members brought together to produce a finished culvert-section. It will also be understood that by forming the ribs 7 and 8 the members 1 and 2 can be cast or formed quite thin and at the same time possess the desired amount of strength for the purpose designed.

It will be understood that in use the members 1 and 2 should be formed of comparatively short lengths, so that they can be easily handled and at the same time conveniently placed in proper position to produce a culvert.

I have illustrated the culvert-sections proper formed of two members; but I do not desire to be confined to the exact construction, as it will readily appear to a mechanic that a complete culvert-section may be composed of more than two members without departing from the improved invention.

Having fully described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. A culvert-section formed of longitudinal members, one of said members provided with
5 grooves and thickened portions located adjacent to the grooves and upon the outer surface of said member, and the other member provided with tongues adapted to be seated into the grooves, connecting-flanges formed
10 upon the member, clamping-bolts located through the connecting-flanges, and springs located around the clamping-bolts, and clamped by the bolts, and flanges, substantially as and for the purpose specified.
- 15 2. A culvert formed in sections and the sections divided longitudinally, one of the sec-

tions provided with grooves upon its edges, and said sections provided with thickened portions adjacent the grooves, and the other section provided with tongues adapted to be seated in the grooves, longitudinal ribs formed upon the sections, and a series of lateral ribs located at an angle to the longitudinal ribs, substantially as and for the purpose specified. 20

In testimony that I claim the above I have
hereunto subscribed my name in the presence of two witnesses. 25

DAVID C. BOYD.

Witnesses:

C. C. YODER,
A. M. OHL.