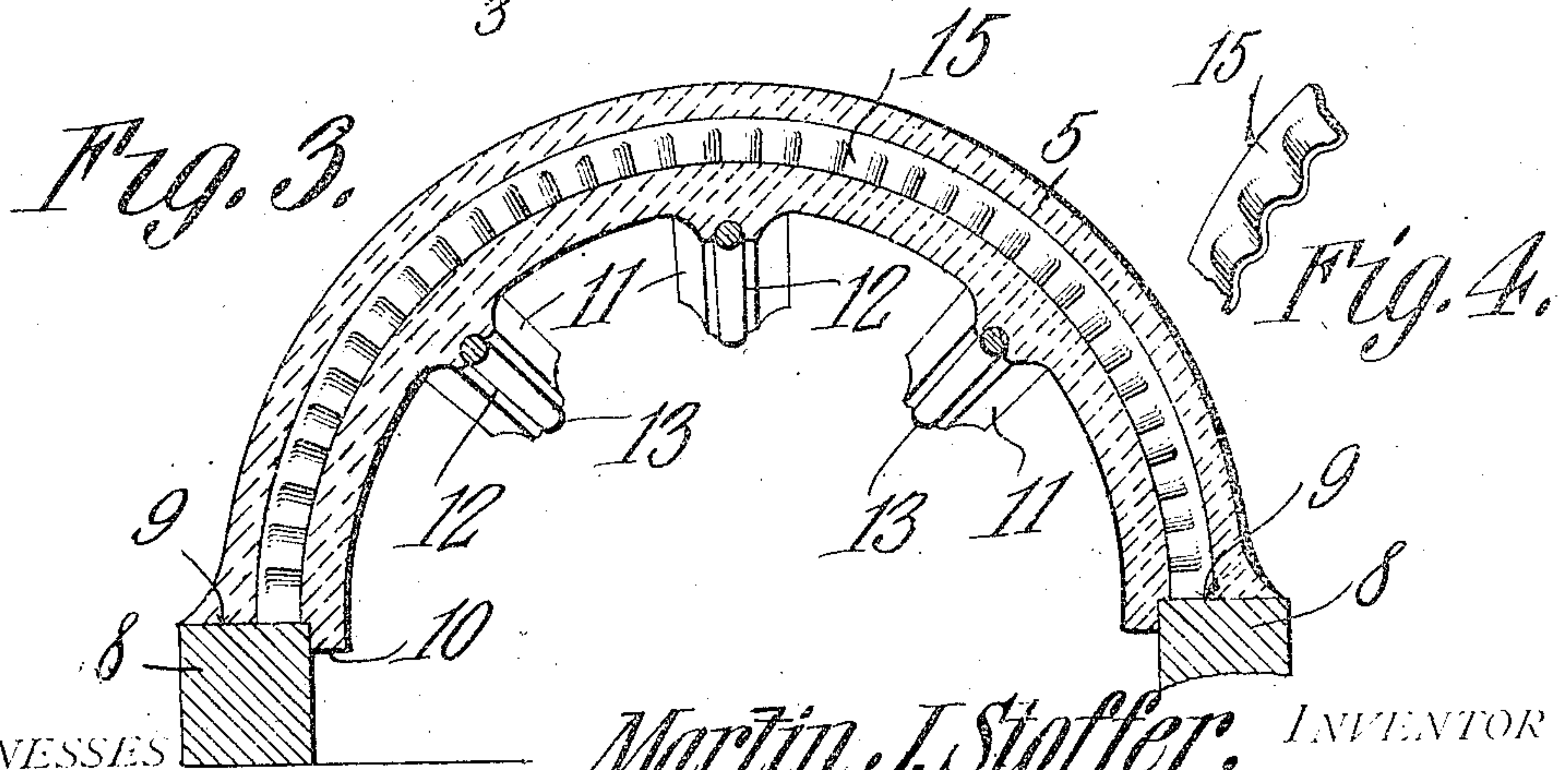
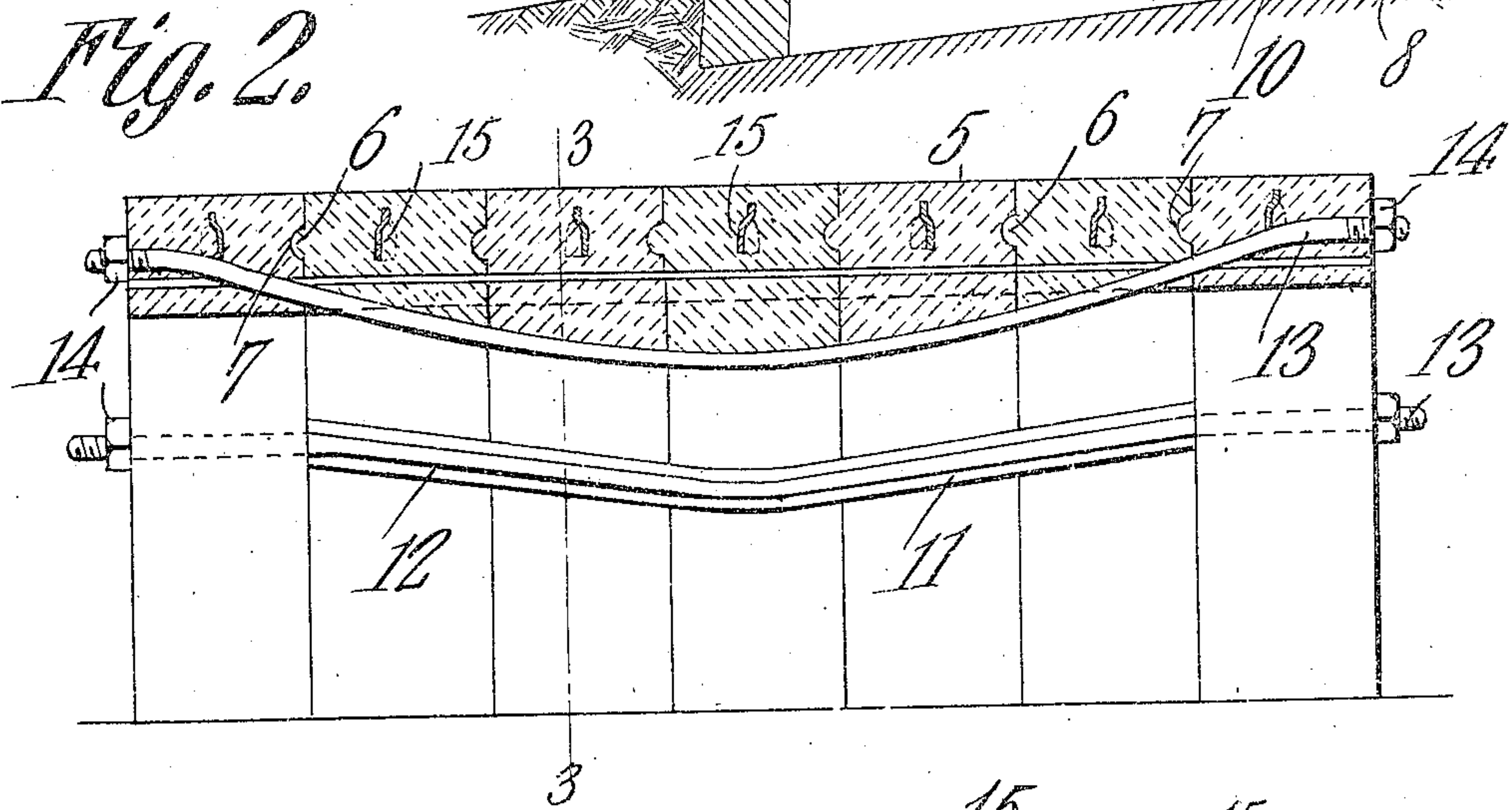
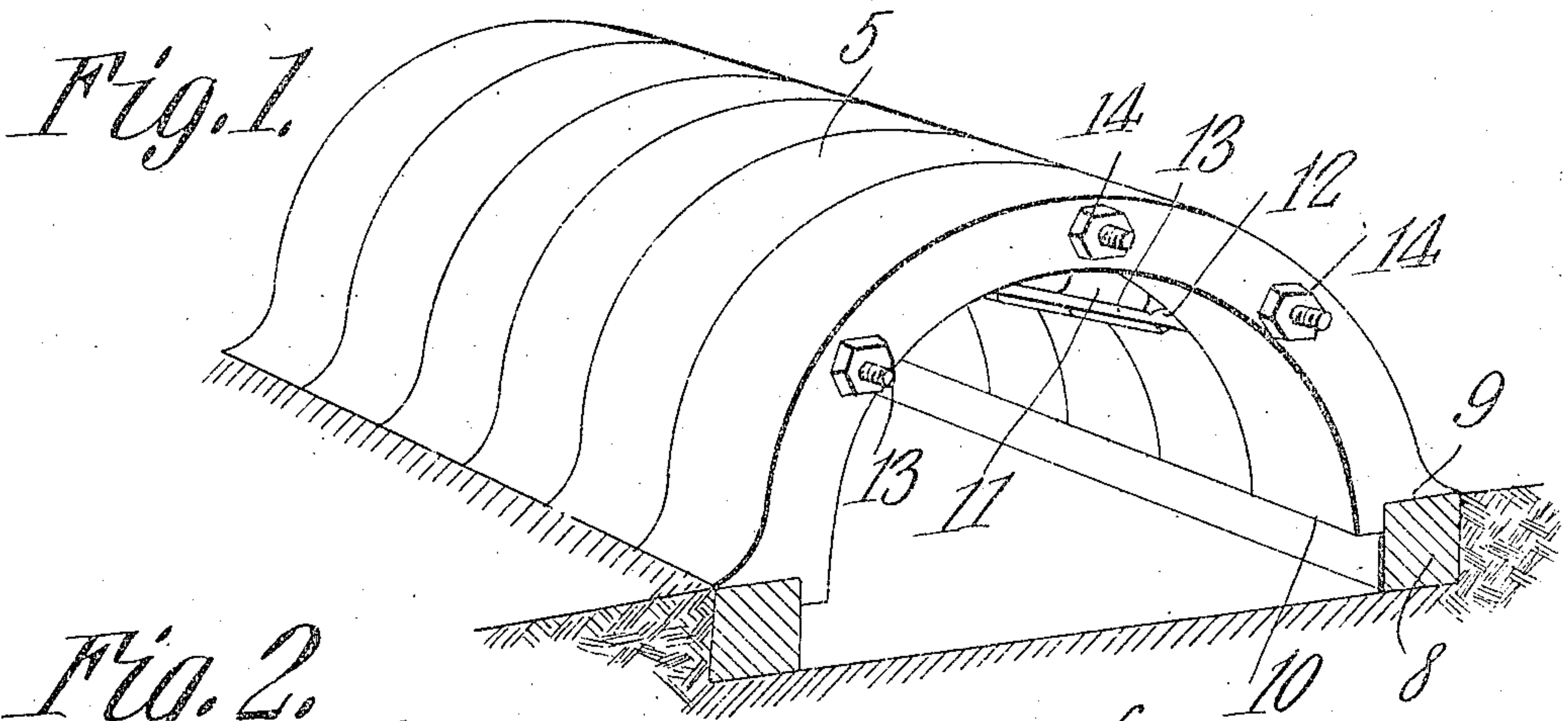


No. 862,292.

PATENTED AUG. 6, 1907.

M. J. STOFFER.  
CULVERT.

APPLICATION FILED MAY 22, 1907.



WITNESSES

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# UNITED STATES PATENT OFFICE.

MARTIN JAY STOFFER, OF CAPAC, MICHIGAN.

## CULVERT.

No. 862,292.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed May 22, 1907. Serial No. 375,091.

*To all whom it may concern:*

Be it known that I, MARTIN JAY STOFFER, a citizen of the United States, residing at Capac, in the county of St. Clair and State of Michigan, have invented a new and useful Culvert, of which the following is a specification.

This invention relates to certain improvements in culverts of that general class especially designed for use beneath rail-way tracks, road-ways and the like or in the construction of sewers, conduits and similar structures.

The object of the invention is to provide a culvert including a plurality of reinforced concrete sections having interfitting parts and provided with longitudinal truss rods for locking said sections in assembled position.

A further object is to provide the culvert sections with inwardly extending ribs having seating recesses formed therein for the reception of the truss rods thereby to lock the truss rods against accidental displacement.

A still further object of the invention 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 perspective view of a portion of a culvert constructed in accordance with my invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2. Fig. 4 is a detail perspective view of a portion of one of the reinforcing cores or bars.

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

The improved culvert forming the subject matter of the present invention includes a plurality of substantially semi-circular sections 5 formed of cement, concrete or other suitable material and each having one longitudinal edge thereof formed with a locking tongue 6 adapted to engage a correspondingly shaped groove 7 formed in the edge of an adjacent section whereby the several sections may be locked in assembled position.

The culvert sections 5 are supported on a suitable base or foundation preferably in the form of spaced bars or butments 8, said sections being provided with flat bearing surfaces 9 defining depending stop flanges 10 which bear against the interior walls of the butments 8, as shown and thus serve to limit the lateral movement of the culvert sections.

The culvert sections are formed with inwardly extending reinforcing ribs 11 having longitudinal seating grooves 12 formed in the free ends thereof for the recep-

tion of truss rods 13, the opposite ends of which are threaded and extend through the exposed face of the terminal culvert sections for engagement with suitable clamping nuts 14. It will thus be seen that by adjusting the nuts 14 on the threaded ends of the truss rods the tongues 6 may be forced into engagement with the grooves 7 and thereby lock the several culvert sections against accidental displacement. It will here be observed that the ribs 11 gradually decrease in length from the center of the culvert towards the opposite ends thereof while the threaded portions of the truss rods project through the exposed faces of the terminal culvert sections so as to form a firm anchorage for said rods. It will also be noted that the truss rods 13 not only serve to lock the culvert sections in assembled position but also serve to reinforce and strengthen the culvert and assist in bracing the latter against vertical and lateral strains.

In order to assist in strengthening the culvert the several sections are each provided with one or more radially corrugated reinforcing strips 15 curved to conform to the shape of the culvert and preferably embedded edge-wise in the cement or other plastic material during the formation of the culvert sections.

It will of course be understood that the culvert sections may be made in different sizes and shapes and that as many truss or tie bars may be employed as found necessary or desirable.

Having thus described the invention what is claimed is:

1. A culvert including a plurality of sections having strengthening ribs projecting within the culverts, truss rods seated in said ribs and extending longitudinally of the culvert, and means engaging the truss rods for clamping the culvert sections in assembled position.

2. A culvert including a plurality of sections having transverse strengthening ribs projecting within the culvert, truss rods engaging said ribs and extending longitudinally of the culvert, and means engaging the truss rods for clamping the several culvert sections in assembled position.

3. A culvert including a plurality of sections having strengthening ribs projecting within the culvert and provided with terminal seating grooves, truss rods seated in said grooves, and means engaging the truss rods for clamping the culvert sections in assembled position.

4. A culvert including a plurality of sections having strengthening ribs projecting within the culvert and gradually decreasing in height from the center of the culvert to the opposite ends thereof, truss rods extending longitudinally of the culvert and engaging said ribs, and means engaging the opposite ends of the truss rods for clamping the culvert sections in assembled position.

5. A culvert formed of a plurality of substantially semi-circular sections provided with strengthening ribs extending within the culvert, truss rods bearing against the ribs and having their opposite ends extended through the terminal culvert sections for locking said sections in engagement with each other, and means engaging the truss rods for clamping the culvert sections in assembled position.

6. A culvert including a plurality of sections provided with interlocking parts, ribs secured to the several sections



and projecting within the culvert, truss rods bearing against the ribs and means engaging the truss rods for locking the sections in engagement with each other.

5 7. A culvert including a plurality of sections having interlocking faces, strengthening ribs projecting within the culvert and gradually decreasing in height from the center thereof to the opposite ends of the culvert, longitudinal truss rods engaging said ribs for locking the several sections in engagement with each other, and means engaging 10 the truss rods for locking the culvert sections in assembled position.

8. A culvert including a plurality of sections provided with strengthening ribs projecting within the culvert and having terminal seating grooves formed therein, truss rods 15 engaging the seating grooves and extending longitudinally of the culvert, and clamping devices engaging the truss rods and bearing against the terminal culvert sections.

9. A culvert including a plurality of sections, transverse ribs formed integral with the culvert sections and projecting 20 within the culvert, truss rods engaging the ribs and having their opposite ends threaded and extended through the terminal culvert sections, and nuts engaging the threaded ends of the truss rods and bearing against the terminal culvert sections for locking the several sections 25 in engagement with each other.

10. A culvert including a plurality of reinforced sections having interfitting parts, ribs projecting within the culvert and provided with terminal seating grooves, and truss 30 rods seated in said grooves and having their opposite ends threaded and extended through the terminal culvert sections, and clamping devices engaging the threaded ends of the rods for locking the several culvert sections in engagement with each other.

11. A culvert including a plurality of reinforced culvert sections having interfitting parts, ribs formed integral 35 with the several culvert sections and projecting within the culvert, said ribs gradually decreasing from the center of the culvert towards the opposite ends thereof and provided with terminal seating grooves, truss rods seated in said 40 grooves and having their opposite ends threaded and extended through the terminal culvert sections, and nuts engaging the threads on the truss rods and bearing against the exterior face of the terminal culvert sections for locking said sections in engagement with each other.

12. A culvert including spaced buttments, a plurality of 45 culvert sections having bearing faces for engagement with the upper surfaces of the buttments and provided with depending flanges bearing against the inner faces of said buttments, ribs extending longitudinally of the culvert and projecting within the same, said ribs being inclined in opposite 50 directions from the center of the culvert and having their free ends provided with seating grooves, and tie-rods seated in said grooves and having their opposite ends threaded and extended through the terminal culvert sections, said 55 sections being each provided with a locking groove adapted to engage a corresponding recess formed in the adjacent section, and clamping nuts engaging the threaded ends of the truss rods for locking the several sections in engagement with each other.

In testimony that I claim the foregoing as my own, I 60 have hereto affixed my signature in the presence of two witnesses.

MARTIN JAY STOFFER.

Witnesses:

GEO. HUNTER,  
W. E. WARREN.