

M. G. FREEMAN.

Improvement in Iron-Culverts.

No. 114,662.

Patented May 9, 1871.

Fig. 1.

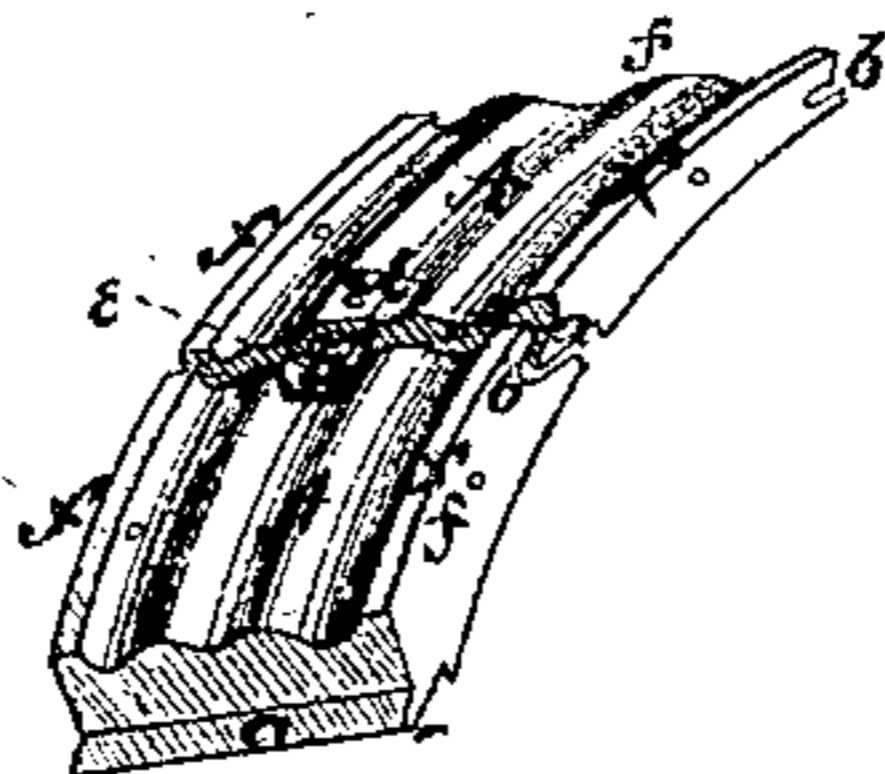


Fig. 2.

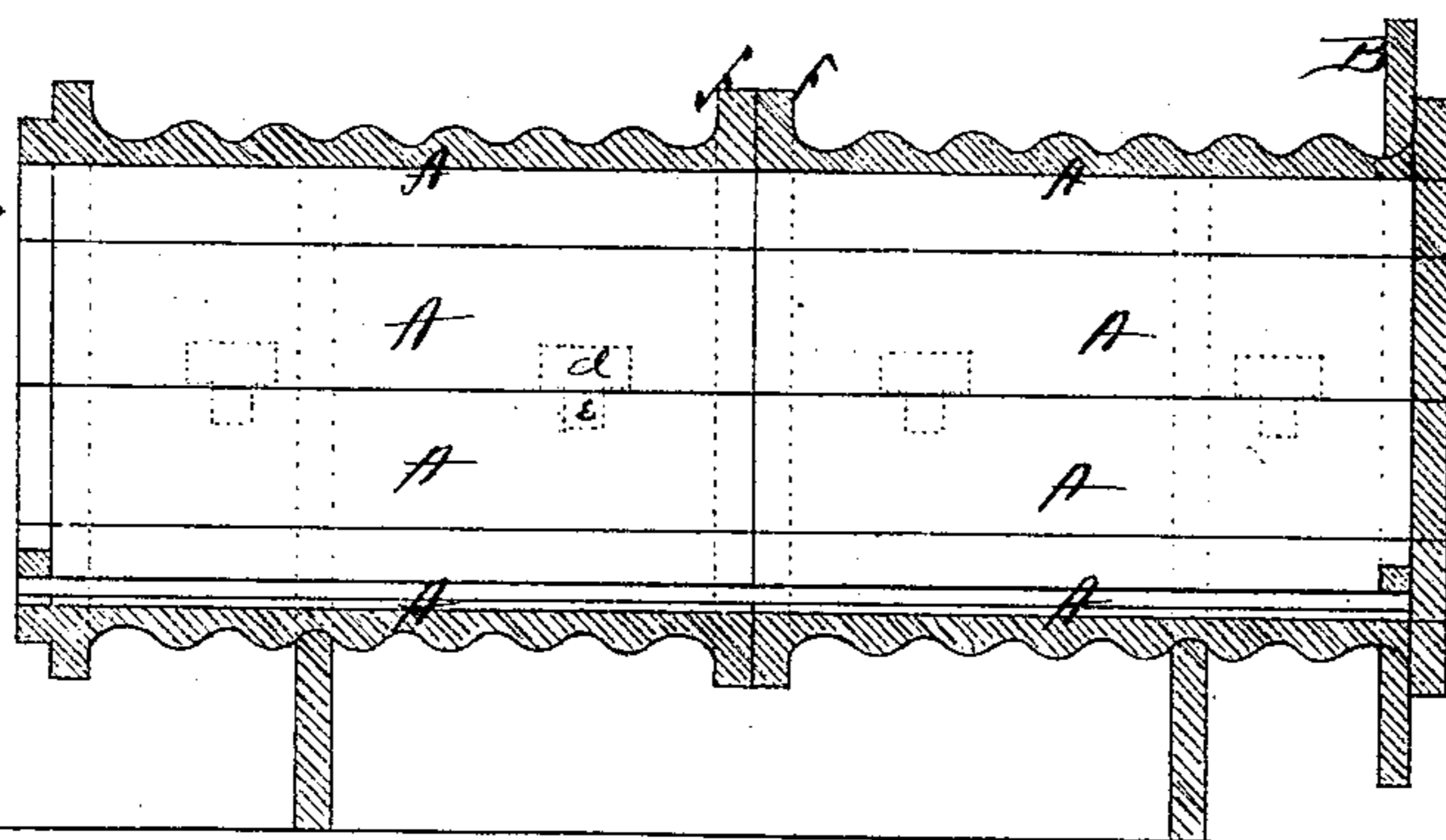
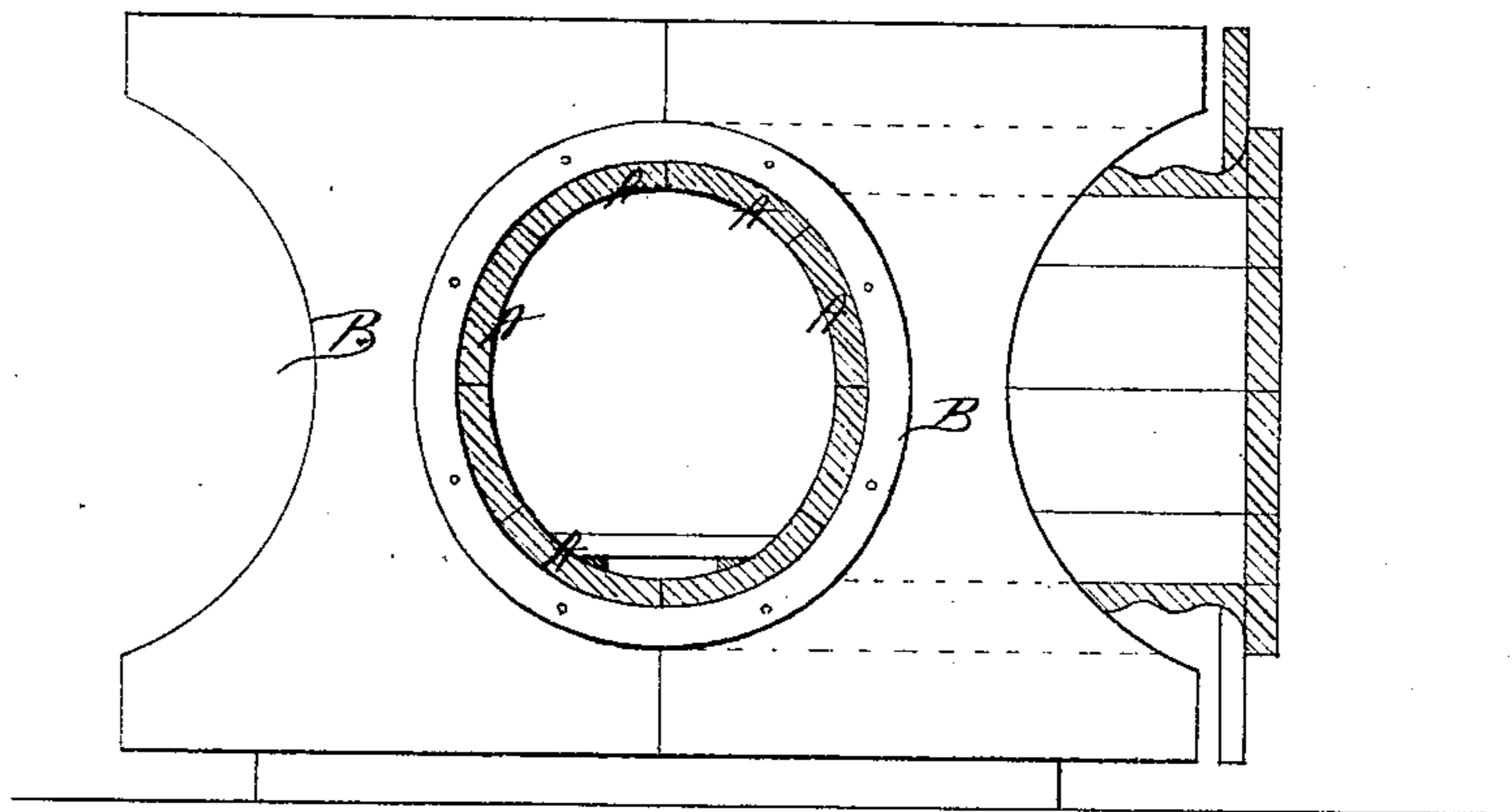


Fig. 3.



Witnesses

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per
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UNITED STATES PATENT OFFICE.

MOODY G. FREEMAN, OF BLOOMINGTON, ILLINOIS.

IMPROVEMENT IN IRON CULVERTS.

Specification forming part of Letters Patent No. **114,662**, dated May 9, 1871.

To all whom it may concern:

Be it known that I, MOODY G. FREEMAN, of Bloomington, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Iron Tunnels or Culverts; and do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention relates to certain improvements upon the iron tunnel or culvert for which Letters Patent were granted to me December 6, 1870, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a perspective view, showing portions of two sections of my culvert. Fig. 2 is a longitudinal vertical section; and Fig. 3 is an end view, showing a lateral tunnel, culvert, or sewer entering the main tunnel.

In my former patent, above referred to, I described my tunnel as made in sections, and each section composed of one top piece and two side pieces, connected together in a certain manner.

In this case I make each section of the tunnel or culvert in as many smaller longitudinal sections A A as may be desired or necessary, each of said smaller sections having along one edge a tongue, *a*, and along the other a groove, *b*. In this groove the tongue of the adjoining section A is inserted. Upon the outside of these sections A A, at one edge, are formed any suitable number of loops *d*, as shown, and tongues or projections *e* on the other to fit into said loops on the adjoining section, and then fastened by a screw or rivet.

At the ends of the sections A A are flanges *f f*, through which bolts are passed to secure the completed sections of the tunnel together.

The sections A A may be made of any size or weight and any form desired, either plain or smooth, or ribbed on one side, as shown in the drawing; or they may be ribbed on both

sides, the bulge on one side against and opposite the depression on the other, said ribs giving greater strength.

The sections A A may go all around, making the tunnel a cylinder, which may be round or oval, as shown in Fig. 2; or several of these sections may be left off at the bottom, and the bottom or lower sections on each side will then be connected and held firm, as specified in my former patent, by rods or bars or plates of iron, or laid on masonry, or otherwise made fast, as may be desired.

The end plates, B B, are used when two or more tunnels are wanted side by side, and these plates can also be made in one or more pieces, as may be desired.

The bottom of the tunnel may be made flat, with the edges turned up, and bent slightly inward at the sides, so that the sections can slip in and cannot spread out at the sides, and also small projections or lugs cast on the bottom, to prevent the foot of section from slipping inward.

This tunnel may be used as a sewer, or on a large scale for a culvert for the passage of water, or as a tunnel for the passage of railroad-trains. In the latter case it may be advisable to construct the track a little above the bottom of the tunnel, as shown in Fig. 2, so as to allow the flow of water below the track and ties.

If desirable to have the track laid on ties to be laid on the ground, as usual, and dispense with any drainage, then several of the individual sections A A may be left off on the bottom side of the tunnel, and the tunnel laid on masonry, as above intimated, or otherwise fastened at the bottom.

This tunnel may be ventilated in the manner described in my former patent. Of course, lateral tunnels may enter a main tunnel, as represented in Fig. 2; and when this is done, as well as when ventilating-shafts connect with the tunnel, the connection must be made water-tight by cement or any other means attainable.

When used for sewers the iron can be made very thin and at less cost than either brick or stone, and as durable as either.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

An iron tunnel, culvert, or sewer made in sections, and each section composed of any desired number of individual sections A A, constructed, as described, with tongues *a*, grooves *b*, loops *d*, projections *e*, and flanges *f*, said individual section and also the main sections being arranged and connected to-

gether substantially in the manner and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 22d day of December, A. D. 1870.

MOODY G. FREEMAN.

Witnesses:

THOS. SLADE,
J. HUKILL.