

(No Model.)

W. H. HENDERSON & L. H. PORTER.
BRACE.

No. 435,496.

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Fig. 1.

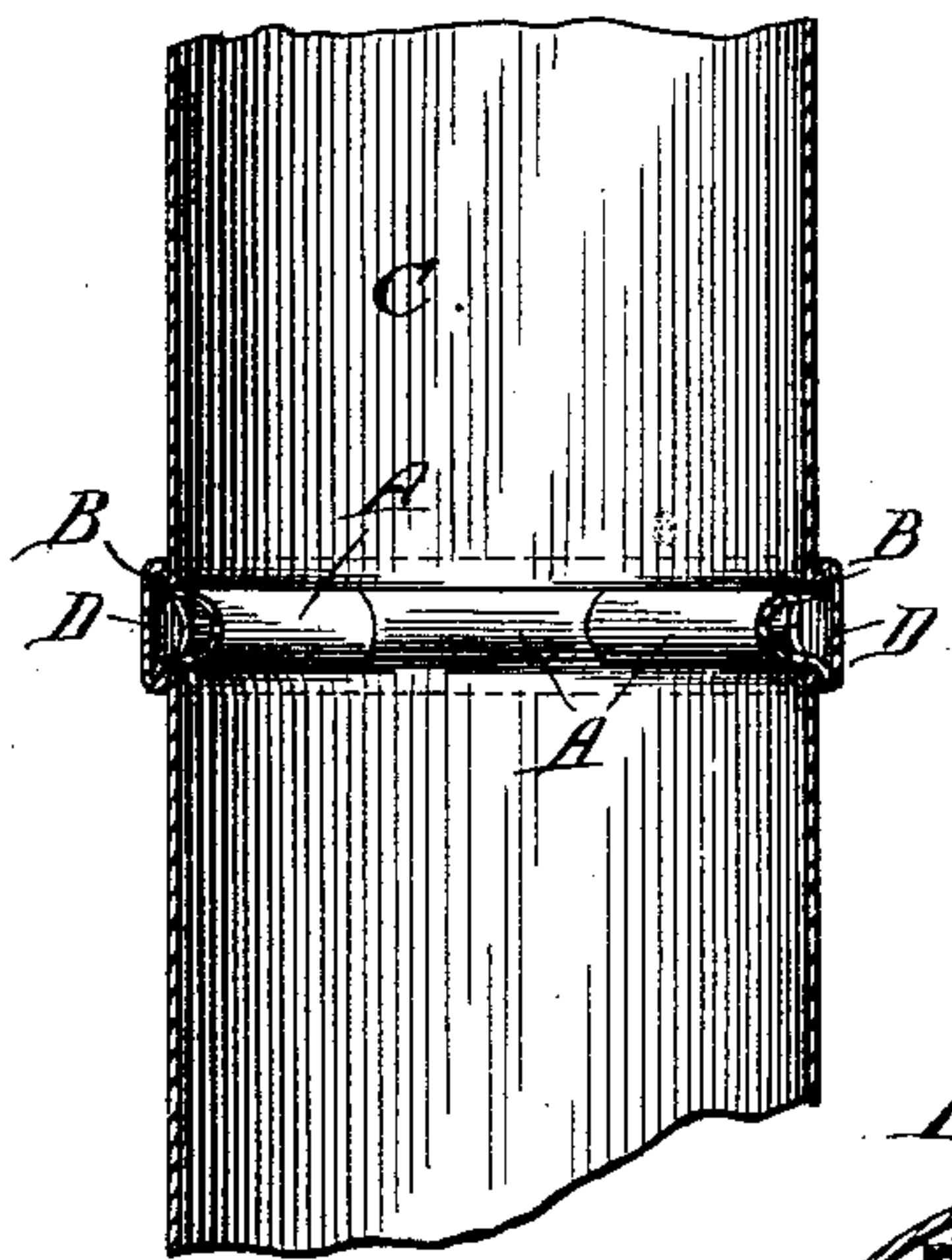


Fig. 2.

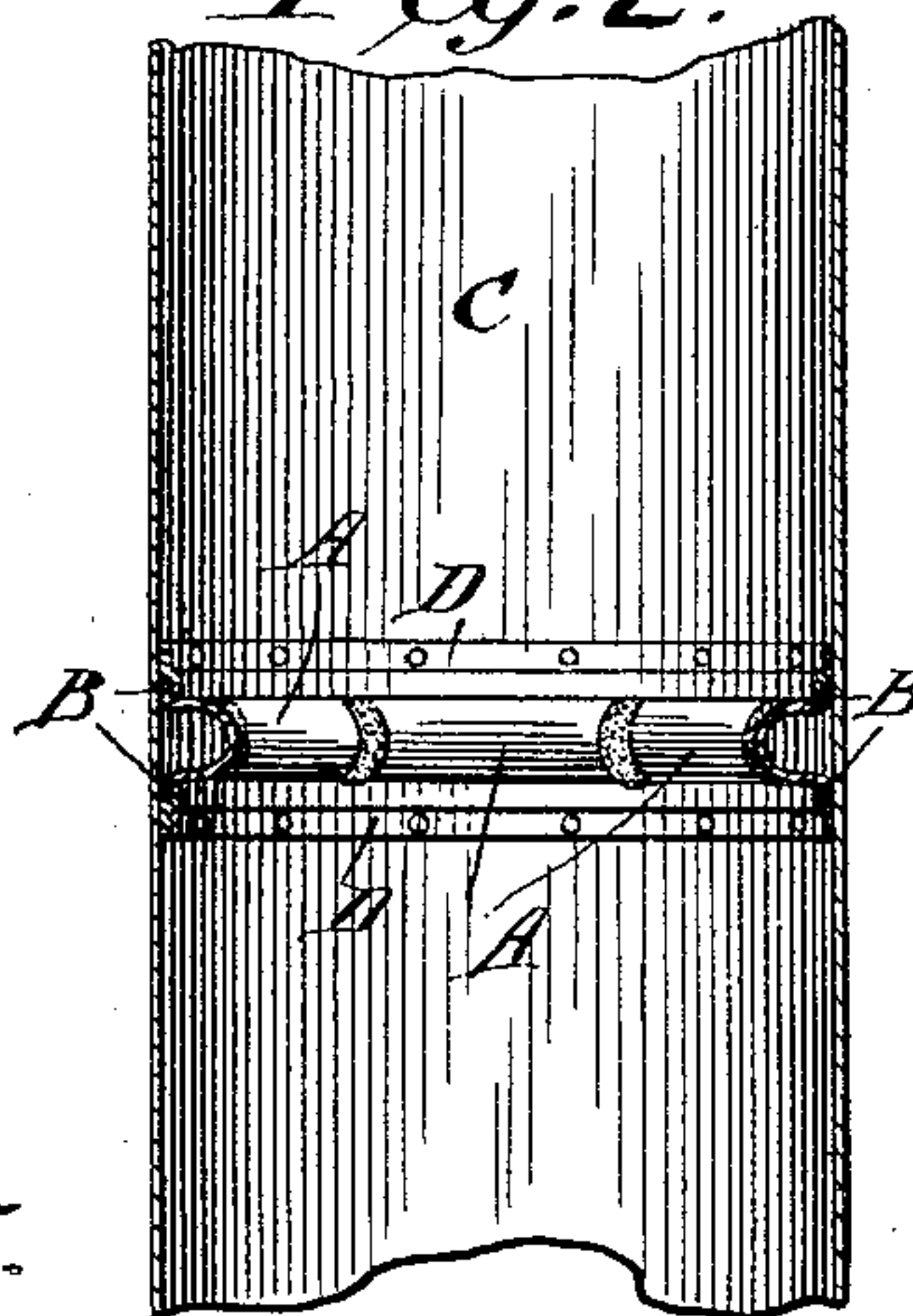


Fig. 5.

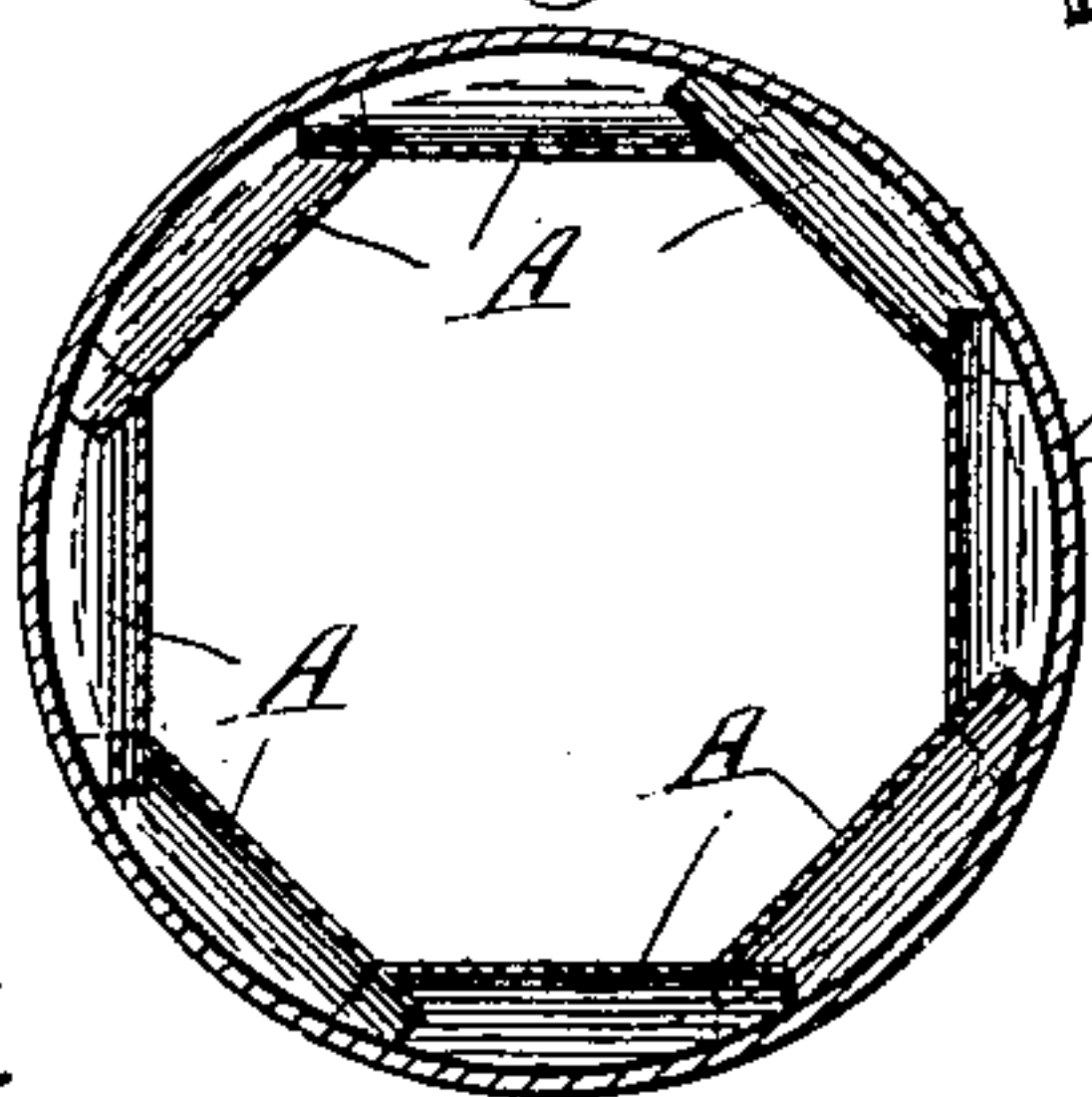


Fig. 6.



Fig. 3.

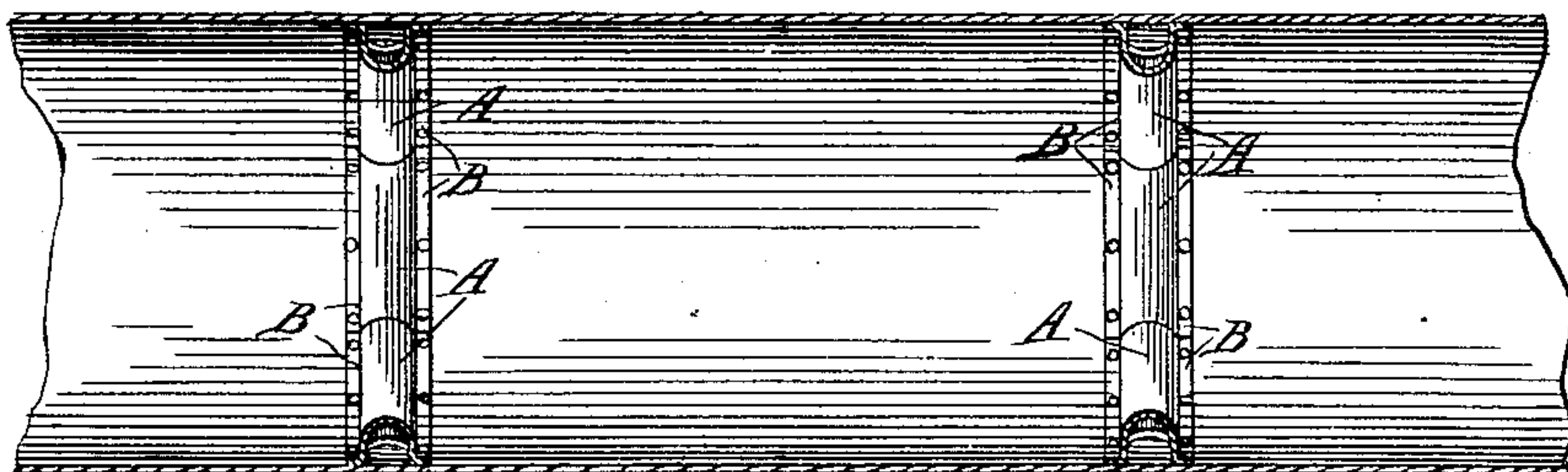
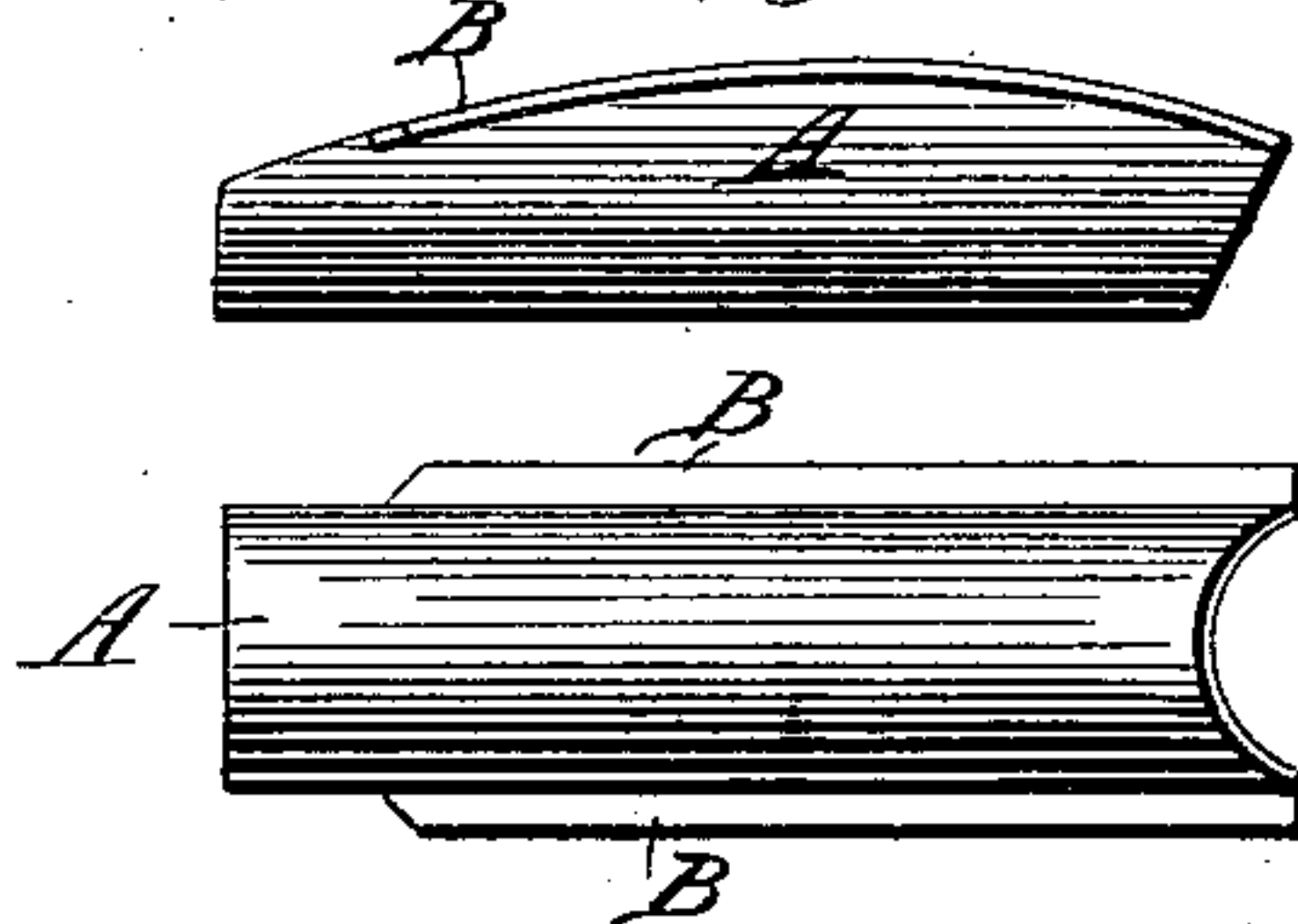


Fig. 4.



WITNESSES:

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WILLIAM H. HENDERSON AND LOUIS H. PORTER, OF ROCKDALE, TEXAS;
SAID HENDERSON ASSIGNOR TO SAID PORTER.

BRACE.

SPECIFICATION forming part of Letters Patent No. 435,496, dated September 2, 1890.

Application filed January 4, 1890. Serial No. 335,846. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. HENDERSON and LOUIS H. PORTER, of Rockdale, in the county of Milam and State of Texas, have invented a new and useful Improvement in Braces, of which the following is a specification.

This invention is an improved brace for hollow structures—such, for instance, as metallic cisterns, well-curbing, underground metallic cisterns, cylinders, piers, and like structures—in which lightness of material is desired and capacity of resisting inward pressure is necessary; and the invention consists in certain novel constructions and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a sectional view of a cistern provided with the improvements, the brace-sections being fitted at their edges in the seats formed by bending the walls of the cistern and fitted together at their ends. Fig. 2 shows the improvements in connection with a cistern having the seats formed by separate pieces secured to the cistern and the brace-sections soldered together at their edges. Fig. 3 shows the brace-sections in connection with a cistern, the seats for the brace-sections being omitted, and said sections being secured by bolting, riveting, or soldering to the cistern; and Fig. 4 shows one of the brace-sections in detail. Fig. 5 is a cross-sectional view, and Fig. 6 shows a slightly-different construction of brace-section from that shown in Fig. 6.

The improved brace comprises, broadly, a number of plates curved in cross-section and forming a plurality of segmental sections.

In the construction shown the invention is shown as applied to a cistern; but it should be distinctly understood that to a certain extent the several different structures heretofore specified—namely, well-curbing, underground cylinders, piers, &c.—may be regarded as equivalents of cisterns.

The brace consists of sections A, each forming a segment of a circle, and the several sections completing the round of the cistern constituting the brace. These sections A are formed of plates of metal bent into a curved cross-sectional shape with its free edges curved

in the arc of a circle and having such free edges provided with flanges B, adapted to lap against the inner side of a cylindrical structure and to be secured, as desired. At one end of the section the flanges B are cut off or omitted for a short distance, so that one end of one section may be forced into the end of an adjoining section to unite such parts. If the sections are soldered together at their ends, this fitting of the end within the end may be omitted. When constructed as described, the sections by their cross-sectional curve or arched construction possess great strength, and when united to complete the ring within the cylindrical structure the brace will operate to strengthen the structure and prevent its collapse.

The cistern C is preferably provided with ways or seats D for the flanges B of the sections. In Fig. 1 these seats are shown as formed by bending the walls of the cistern, which construction may be found desirable when such structure is formed of thin metal; but when heavier metal is used in making the cistern or other structure the seats may be provided by securing parts within said structure, as will be understood from Fig. 2. In Fig. 3 the brace-sections are shown as soldered, bolted, or riveted to the walls of the cistern.

It is manifest that the brace-sections might be manufactured in quantities and sold to sheet-metal workers or others for application to the structures required to be braced; also, that any suitable number of bracing-rings may be employed to properly brace any given structure.

In Fig. 6 the brace-section is shown as formed with a shoulder or rib *a* near its small end, such shoulder *a* being so formed as to strike fairly against the end of the adjacent section, into which such small end is driven. This construction is especially desirable when the brace is formed of or used in black iron or other metal that cannot be soldered, such shoulder forming a simple convenient stop to limit the movement of the sections into each other.

Having thus described our invention, what we claim as new is—

1. A brace, substantially as described, con-

sisting of a number of segmental sections united at their ends and formed of plates of metal curved in cross-section, substantially as set forth.

5 2. The improved brace herein described, consisting of a number of sections, each being formed of a plate of metal curved in cross-section having at its free edges flanges and
10 having such flanges cut away at one end of the section, so that the sections may be fitted at one end in the end of the adjoining section, substantially as set forth.

3. A cistern or its equivalent, substantially as described, provided internally with a ring-
15 like brace formed of metal plates curved in cross-section and secured at their edges to the said cistern or its equivalent, substantially as set forth.

4. The combination of the cistern or its
20 equivalent having internally-circumferential seats and the ring-like brace having at its

free edges flanges to fit said seats, substantially as set forth.

5. The combination, substantially as described, of the cistern or its equivalent hav- 25 ing its walls bent to form circumferential seats and the ring-like brace having at its edges flanges fitted in said seats, substantially as set forth.

6. The combination, substantially as de- 30 scribed, of the cistern or its equivalent having internal circumferential seats and the brace-sections having edge flanges fitted to said seats and having such flanges cut away at one end, whereby the section may fit at one 35 end in the end of the adjacent section, substantially as set forth.

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Witnesses:

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