

(No Model.)

J. C. BAYLES.  
PIPE OR TUBING.

No. 422,066.

Patented Feb. 25, 1890.

Fig. 1

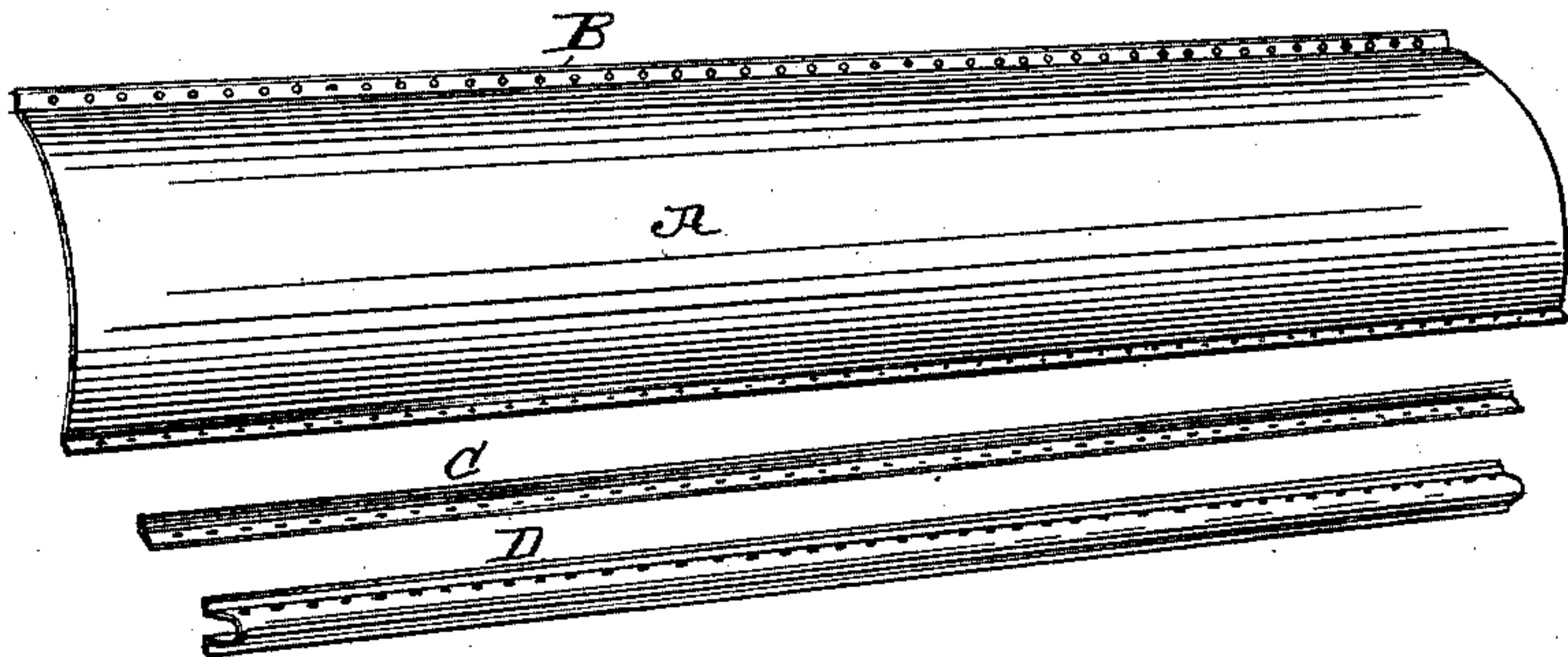


Fig. 2

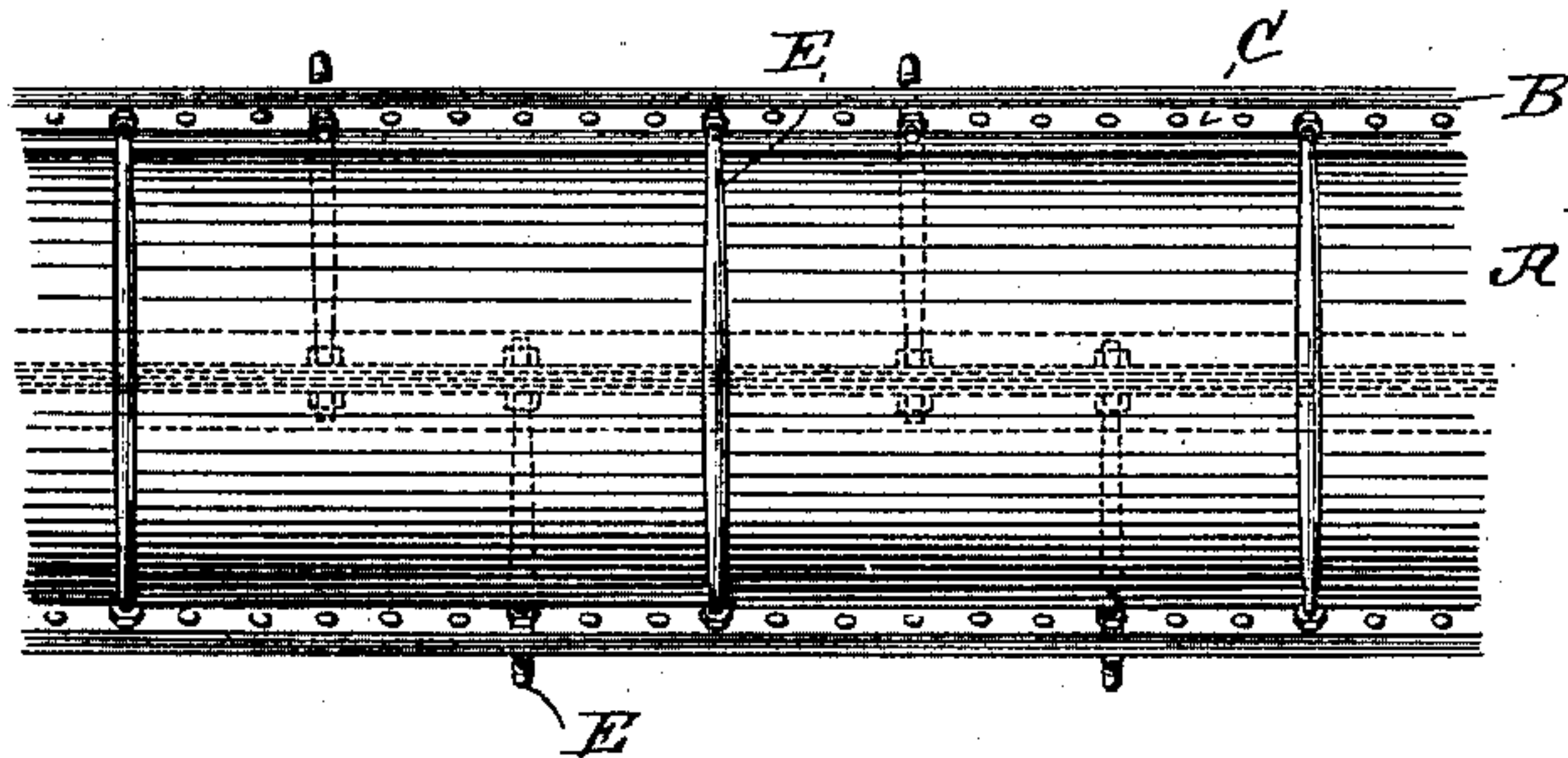


Fig. 3

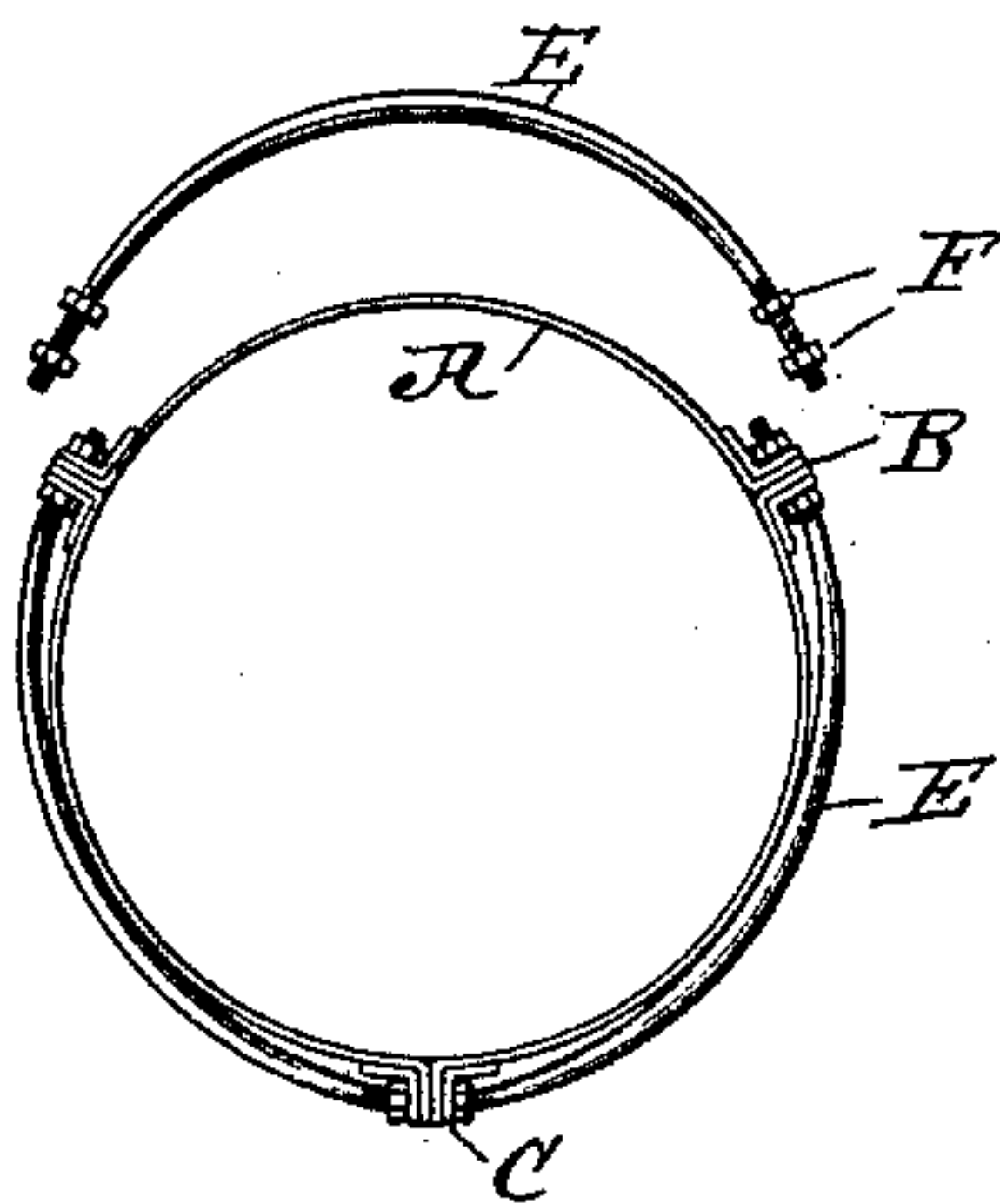


Fig. 4



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# UNITED STATES PATENT OFFICE.

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## PIPE OR TUBING.

SPECIFICATION forming part of Letters Patent No. 422,066, dated February 25, 1890.

Application filed December 7, 1889. Serial No. 332,983. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES C. BAYLES, of East Orange, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Pipes or Tubing, of which the following is a specification, reference being had to the accompanying drawings.

The invention relates, generally, to pipes composed of two or more longitudinal sections, each shaped to the circle of the pipe and having their lengthwise edges outwardly flanged, the sections being brought together with the flanges of one section upon those of the adjoining section or sections, and the flanges thus overlying each other being secured together by riveting or welding. In the use of pipe of this kind, especially when made from thin strong sheet metal—such as rolled steel—it is found that the body part of the pipe is much stronger than the seam portions. Thus the pressure exerted upon any one longitudinal section of the pipe is resisted entirely at its lengthwise edges—that is to say, the metal of the section being unyielding and the direction of the strain being along the radii of the curve of the section, the effect of pressure upon such section is to tend to lift it bodily away from the adjoining sections. This action gradually forces the connected flanges apart, opening the weld or shearing the rivets and tearing off their heads.

The object, therefore, of the present invention is to strengthen the joints of a pipe made as above indicated, so that the pipe as a whole will have a pressure-resisting capacity approximating if not the same as that of the body portions of the sheet metal entering into its construction.

The invention consists, first, of a pipe composed of longitudinal sections secured together along outwardly-turned lengthwise flanges, said flanges being re-enforced by strips fastened upon one or both of their outer faces, or by a re-enforce strip shaped to inclose the flanges.

The invention consists, secondly, of tension-bands extending between and anchored to the projecting flanges of the sections, the bands of one section being located intermediate to those of the other sections.

Referring to the drawings, Figure 1 is a per-

spective view of one of the longitudinal sections of a three-section pipe. Fig. 2 shows a part of the completed pipe. Fig. 3 is a cross-section of the same with one of the tension-bands removed. Fig. 4 is a partial cross-section showing a modified form of the re-enforce strips.

In the views, A represents the longitudinal sections, which may be the half, third, or other part of the circle of the pipe. In the drawings they are shown as third parts. These sections are curved to the circle of the pipe and their longitudinal edges are outwardly bent to form flanges B, which flanges are punched, as shown, whereby to be riveted to the corresponding flanges of adjacent sections.

C is one form of the re-enforce strips or bars. These bars are right-angle or L bars in cross-section, and they are punched with rivet-holes to correspond to the holes of the flanges B. When the pipe-sections are assembled, these bars are placed in position on the opposite sides of the flanges of the seam with one of their leaves lying upon the cylindrical portion of the pipe, as shown in Figs. 2 and 3, and these bars and the flanges of the sections are then riveted together.

D shows another form of re-enforce bar for the seam-flanges. This bar is in general form a cap or U-shaped bar. It is, in fact, two bars like the bar C joined together, and it surrounds or caps the edges of flanges B, as seen in Fig. 4.

E are the tension-bands. These correspond in length to the circular width of the sections A. Their ends are threaded to receive nuts F, which threaded parts may be of about the size, or larger, if preferred, of the rivet-holes through the flanges B and bars C or D. The ends of these tension-bands are inserted through the seam parts on opposite edges of the sections and their nuts screwed down, the bands of one section being passed through the seam parts in a direction reverse to that of the bands of the adjoining sections, and the bands of any one section being arranged intermediate to those of the other section. It will be obvious that these bands may be similarly attached to the flanges of the sections when the re-enforce bars are not used, as also that they may be omitted when such



bars suffice to give the desired strength and rigidity to the pipes. By these means it will be seen that the spreading of the flanges of the seam is wholly prevented, as the angle  
5 between the flanges of the sections and their body or curved parts is so braced or re-enforced that it cannot be drawn out, and so long as this condition exists there can be no shearing of the rivets or leakage of the seam.  
10 So, too, when necessary to resist very great internal pressure, the tension - bands add greatly to the strength of the whole pipe, and particularly to the seam parts, for they serve to anchor such section to the others and to  
15 distribute the strains, so that, within the strength of the body parts of the sections, the connected parts are drawn tighter together by internal pressure. In this way pipe may be constructed of thin strong sheet metal that  
20 shall be as strong throughout all its seam parts as is the plain material of which it is composed.

What is claimed as new is—

25 1. In a sheet-metal pipe, two or more longitudinal sections curved to the circle of the pipe and having outwardly-projecting flanges along their longitudinal edges, the flanges of adjacent sections being riveted together, and re-enforce bars secured upon the outer faces  
30 of the flanges, substantially as described.

2. In a sheet-metal pipe, two or more longitudinal sections curved to the circle of the pipe and having outwardly-projecting flanges along their longitudinal edges, the flanges of adjacent sections being riveted together, and  
35 re-enforce bars secured upon the flanges and in the angle formed by said flanges and the body of the sections, substantially as described.

3. In a sheet-metal pipe, the combination of two or more sections shaped to the radius of  
40 the pipe and having outwardly - projecting longitudinal flanges, the flanges of the adjoining sections being secured together, and circular tension-bands extending between the flange-seam parts and attached to such flanges,  
45 substantially as described.

4. In a sheet-metal pipe, the combination of two or more sections shaped to the radius of the pipe and having outwardly - projecting  
50 longitudinal flanged edges, the flanges of adjoining sections being secured together between re-enforce bars, and circular tension-bands extending between the seam parts and attached to said flanges and bars, substantially as described.

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