No. 842,580. PATENTED JAN. 29, 1907.

W. J. PLECKER.

PIPE ELBOW.

APPLICATION FILED OCT. 26, 1904.

Fig. 1.

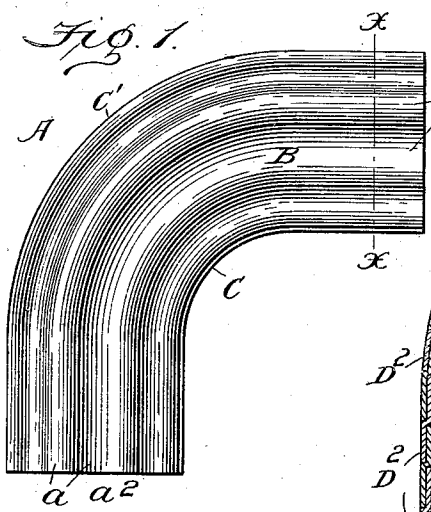


Fig. 5.

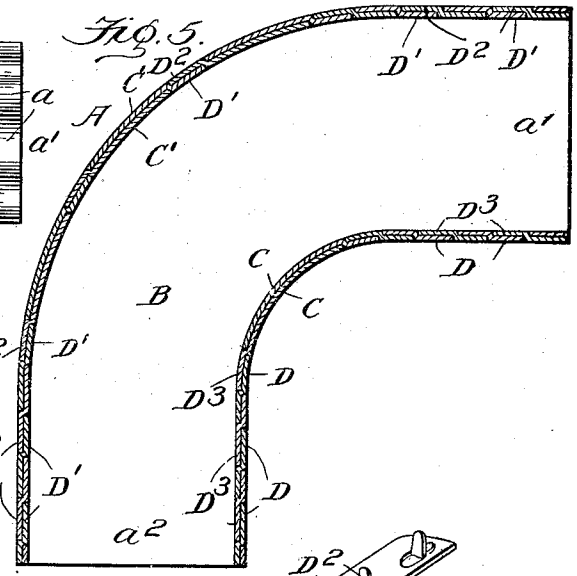


Fig. 2.

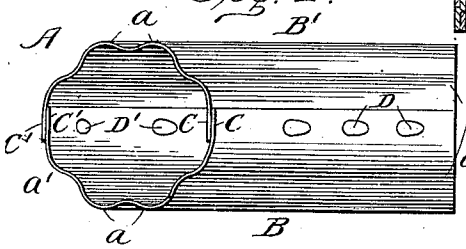


Fig. 6.

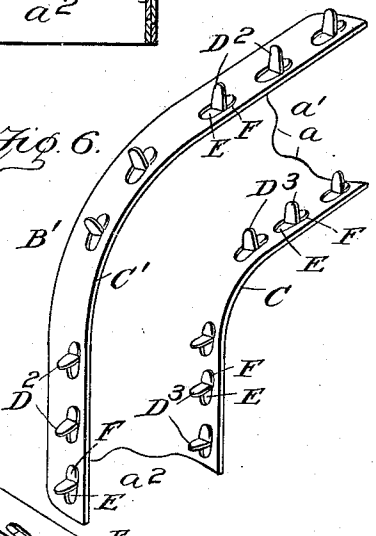


Fig. 3.

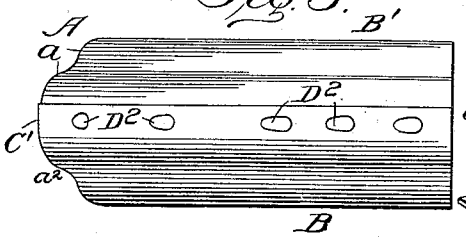


Fig. 4.

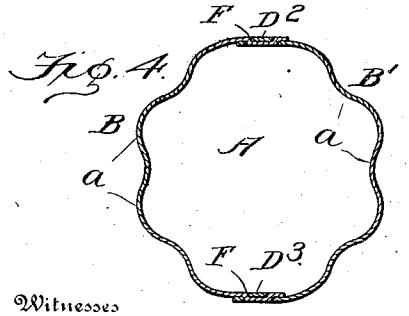
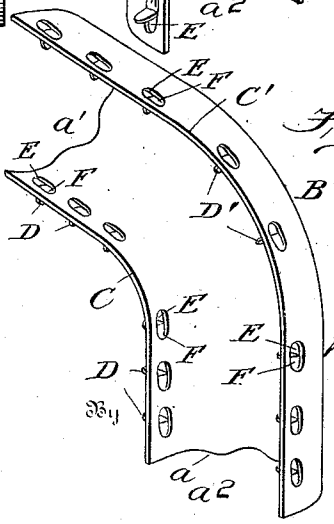


Fig. 7.



Witnesses

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UNITED STATES PATENT OFFICE.

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PIPE-ELBOW.

No. 842,580. Specification of Letters Patent. Patented Jan. 29, 1907.

Application filed October 25, 1904. Serial No. 229,953.

To all whom it may concern:

Be it known that I, WILLIAM J. PLECKER, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Pipe-Elbows, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to pipe-elbows, the object being to form and relate the parts which constitute an elbow in such a way that they can be made of materials that have not been heretofore available and also in such a way that perfectly tight joints can be secured between the component parts of each elbow. Heretofore elbows of this sort to which my invention appertains have been made in one or another of several ways. One of the plans has been to form the elbow in halves or sections separable on the plane of the longitudinal axis and secured together along the edges of the sections or halves by the ordinary lock joints or seams commonly used in securing together the edges of pieces of thin sheet metal; but experience has shown that it is not possible to employ the heavier and stronger grades of sheet metal when making elbows in this manner, and yet for a long time it has been well known that these grades of metal are desirable for many purposes. I have succeeded in making tight elbows by so forming the parts that a firm union of the adjacent and overlapping edges of the sections is obtained without lock-seaming, and as a result I can now employ the thicker and heavier grades of metal.

Figure 1 is a side elevation of a pipe-elbow embodying my improvements. Fig. 2 is an elevation from the bottom and concave side of the elbow. Fig. 3 is an elevation from the top or convex side. Fig. 4 is a transverse section on line $x\,x$, Fig. 1. Fig. 5 is a central longitudinal section. Fig. 6 shows in perspective one of the halves or sections of an elbow detached. Fig. 7 shows in perspective the other half or section.

In the drawings the elbow is indicated as an entirety by A. It is formed of sheet metal, either plain or with corrugations a, extending from the end of the arm or part a' to the end of the arm or part a^2—that is to say, the corrugations have the general lines of curvature of the elbow. It is formed from two sections or sheets of metal, each adapted to provide the one-half of a curved tube. One of these halves or sections is indicated by B and the other by B′. Up to certain stages in the manufacture each of these halves or sections is a counterpart of and similar to the other. After they have been cut I prefer to give the sections their concavo-convex shape by a swaging action by means of a press and matrix, and at the same time they may be corrugated, if desired. Each one has at each edge a strip or part C C′, each of which is flat or approximately tangential to the circle of section around the axis. The inner plate or strip C of section B has the outwardly-extending lips or prongs or tongues D, and the strip C′ of said section has prongs or tongues D′, which are similar, but extend inward. The plates C C′ of the other half or section B′ are similarly formed with tongues or lips, as shown at D^2 D^3, the difference being that the tongues of the inner plate C of this half or section project inward, while those on the outer plate or strip C′ are turned outward. In each case the tongues or lips are formed by punching a small area of the metal out of the sheet—that is to say, severing it upon three sides from the sheet and bending the severed part laterally, in some cases outward and in others inward. Apertures E are thus formed in the sheets of metal, and the metal removed to form the apertures is that which constitutes the tongues.

After the two sections or halves B B′ have been formed in the way above described and the tongues and apertures have been provided the sections are brought together and so related that the tongues D D′ on one half or section project, respectively, through the apertures E in the other half, and the tongues D^2 D^3 on the latter project through the apertures E of the former. Then the overlapping tongues at each pair of apertures are bent so as to take the positions illustrated in Fig. 5. This bending operation can be effected in any suitable way, either by a press or hammering. It will be seen that after the joining has been finished the apertures on one half are completely and tightly closed by the tongue and adjacent metal of the other half.

I prefer to form indentations or recesses F respectively adjacent to the apertures E, these being immediately behind the line of junction of the tongues with the main sheet metal. Consequently when the tongues are bent down into their closed positions their ends can be received by and seated in these

recesses, so that the external surfaces of the elbow when finished is practically unbroken and smooth.

As above stated, pipe-elbows of this class as heretofore made have had their halves or sections united by means of the common lock joint or seam; but it is a well-known fact that a joint or seam of that character can be made only from sheet metal which is below a certain gage in thickness. Hence it has been impossible to make such elbows of the thicker grades of metal; but an elbow having features of construction such as I have devised and above described can be made of sheet metal of any of the ordinary heavier gages, the only limit being that the thickness shall not be so great as to prevent the initial swaging and punching which forms the apertures E and the tongues or prongs D D′ D^2 D^3.

What I claim is—

1. The herein-described pipe-elbow formed of two half-sections, each section having along one edge a series of apertures and a series of outward-turned tongues, and along the other edge a series of apertures and a series of inward-turned tongues, the tongues of one half-section being respectively passed through the opposed apertures of the other half-section and the tongues of each pair of adjacent tongues being at their ends bent in opposite directions, substantially as set forth.

2. For the manufacture of a pipe-elbow the herein-described pair of half-sections, each section having at one edge a series of apertures and a series of inward-turned tongues, and at the other edge a series of apertures and a series of outward-turned tongues, the tongues along the outer or convex edge of the first section being turned inward, the tongues along the outer or convex edge of the second half-section being turned outward, the tongues along the inner or convex edge of the second half-section being turned inward and the tongues along the inner or concave side of the first-aforesaid section being turned outward, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM J. PLECKER.

Witnesses:

CHAS. O. FREEMAN,

HENRY J. LOTTMANN.