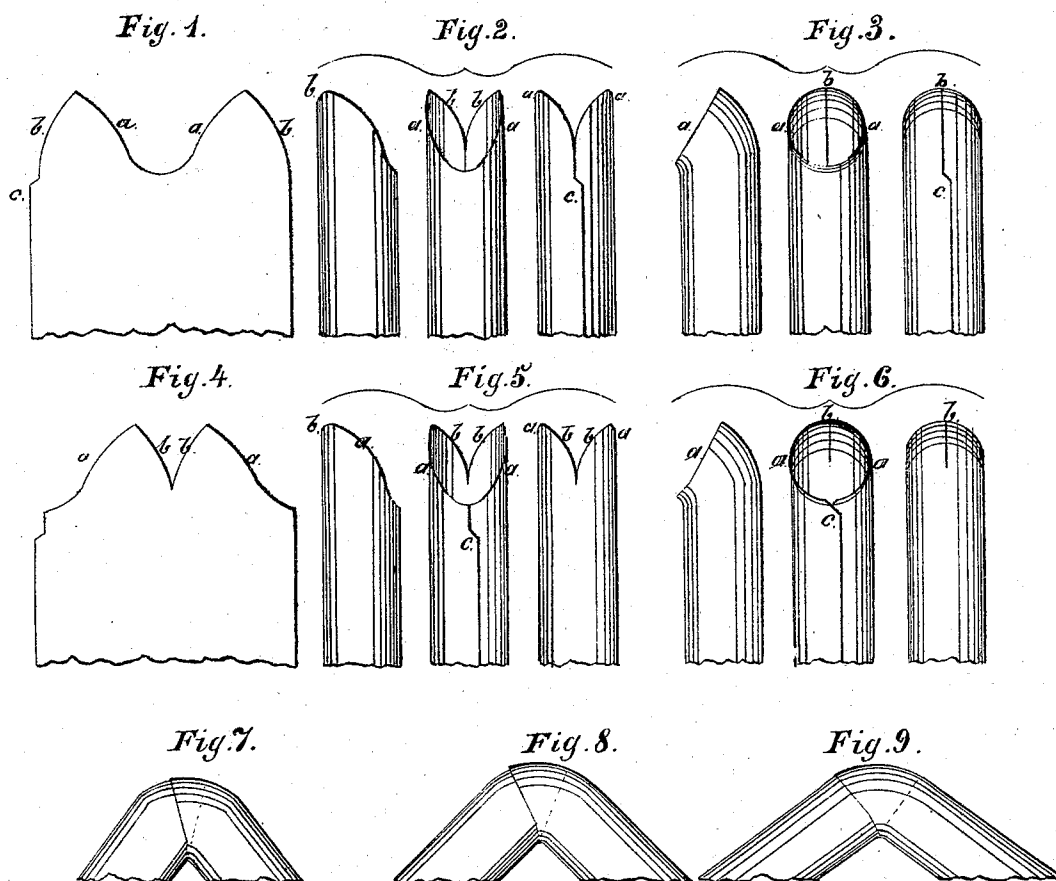


J. S. DENNIS.
Sheet-Metal Elbow-Joints.

No. 151,103.

Patented May 19, 1874.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOSEPH S. DENNIS, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN SHEET-METAL ELBOW-JOINTS.

Specification forming part of Letters Patent No. **151,103**, dated May 19, 1874; application filed April 11, 1871.

To all whom it may concern:

Be it known that I, JOSEPH S. DENNIS, of Chicago, Illinois, have invented certain Improvements in Elbow-Joints for Sheet-Metal Tubing and Piping, of which the following is a specification:

This invention relates to a novel elbow-joint for all kinds of sheet-metal tubing or piping.

My invention is intended to facilitate and cheapen the making of elbows for sheet-metal tubes, as well as to improve the appearance of the same; and it consists of a pipe-elbow formed by joining two curved ends, each of said curved ends forming one-half of the elbow, as will be fully understood by the following description setting forth the method of construction which I prefer to employ, and having reference to the accompanying drawings, in which drawing—

Figure 1 represents a view of the former or blank before the tube is rolled. Fig. 2 represents a side, front, and rear view of the tube after it is rolled, and before the curve is formed; Fig. 3, a side, front, and rear view of the same after the curve is formed. Fig. 4 is a view of the same blank as Fig. 1, except that the line of union is at the opposite side of the tube when rolled. Fig. 5 is a side, front, and rear view of this latter blank when rolled into a tube; and Fig. 6 is a side, front, and rear view of the same after the curve is formed. Figs. 7, 8, and 9 are views of the elbow-joint complete, illustrating the different angles at which the same parts may be joined.

The blanks for the tubes are first cut by dies or other suitable means into the form substantially as shown at Fig. 1 or Fig. 4, the difference between the two being simply that in Fig. 1 the lap or fold, where the edges of the blank come together to form the tube, is located on the outside of the curve or elbow, and in Fig. 4 it is on the inside of the curve or elbow; it is sometimes convenient to have it upon one side and sometimes upon the other. In all other respects the two blanks are the same. In these blanks it will be noticed the end at which the half-elbow is to be formed

is shaped with the curve *a a* and the curve *b b*, (shown in the drawing;) the form may be somewhat varied, but I deem the pattern given in the drawing the best. The blank is rolled into a tube, as shown at Figs. 2 and 5, and it may be now, as at a future stage, soldered at the lap *c*; or, in case of large piping, the edges may be joined by the common pipe-lap fold, or riveted. The metal at the end is then bent, by any suitable mechanical means, until the curves *b b* come in contact, and the curves *a a* are brought into a circle lying in plane oblique to the axis of the tube—in other words, until a half-elbow is formed at the end of the tube, as shown at Figs. 3 and 6. Two of the tubes, each formed thus with a half-elbow, are united to form a complete elbow-joint, by thrusting one within the other as far as may be desired to give the proper angle. It may be best in making elbows for stove-pipes, where it is impracticable to solder the parts together, that the blanks for the two limbs of the joint be made slightly different from each other, by varying the position of the line of union or lap where the tube is seamed, so that the slit or ununited edges of the curves *b b* shall not register when the two half-elbows are joined. This, however, would seem to be a matter to be left to the judgment of the workman. The two limbs of the joint may be united, as is indicated in Figs. 7, 8, and 9, at various angles; this proves a great convenience in fitting up any kind of tubing or piping.

This joint may be made very cheaply, and wholly by machinery, if desired, and is much easier to make, and presents a more elegant and shapely appearance, than the common mitered joint or the corrugated joint.

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

A sheet-metal elbow formed of two curved ends of a tube cupped together, substantially as specified.

J. S. DENNIS.

Witnesses:

JOHN W. MUNDAY,
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