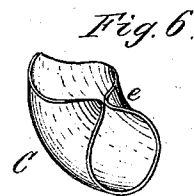
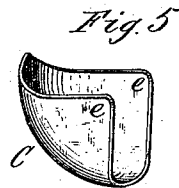
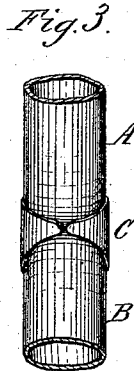
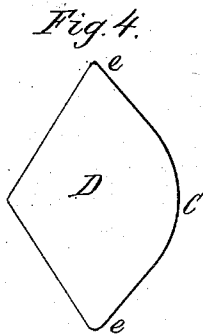
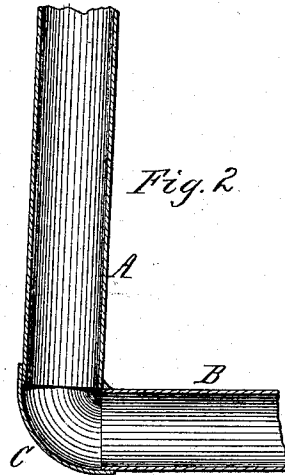
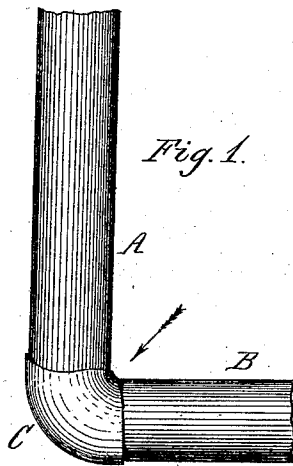


J. W. ORPHY.  
Elbow Joint.

No. 229,331.

Patented June 29, 1880.



Witnesses:

Chas. J. Buchheit  
Edw. J. Brady

John W. Orphy Inventor.  
By Wilhelm Bonner.  
Attorneys.

# UNITED STATES PATENT OFFICE.

JOHN W. ORPHY, OF ROCHESTER, NEW YORK, ASSIGNOR TO CHARLES T. HAM AND F. D. W. CLARKE, OF SAME PLACE.

## ELBOW-JOINT.

SPECIFICATION forming part of Letters Patent No. 229,331, dated June 29, 1880.

Application filed December 19, 1879.

*To all whom it may concern:*

Be it known that I, JOHN W. ORPHY, of the city of Rochester, in the county of Monroe and State of New York, have invented new and useful Improvements in Elbow-Joints, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates more particularly to the construction of an elbow-joint for tin tubes—such, for instance, as are used in tubular lamps and lanterns.

The object of my invention is to simplify and cheapen the construction of these elbows; and my invention consists, to that end, of an elbow formed of a single piece or blank of tin bent to the required form, as will be herein-after fully set forth.

In the accompanying drawings, Figure 1 represents a side elevation of two tubes connected by my improved elbow. Fig. 2 is a vertical section thereof. Fig. 3 is a view taken in the direction of the arrow in Fig. 1. Fig. 4 is a view of the blank from which the elbow is formed. Fig. 5 is a perspective view of the blank with its corners turned up. Fig. 6 is a perspective view of the completed elbow.

Like letters of reference refer to like parts in the several figures.

A B represent two tubes of tin arranged at an angle approaching a right angle with reference to each other, and having straight adjacent ends, as shown in Fig. 2.

C represents the elbow by which the ends of the tubes are connected together. It is formed of a single blank, D, Fig. 4, resembling a lozenge or diamond in form, and bounded by two straight sides meeting in a point and two straight sides starting from the outer ends of the first-mentioned straight sides, and connected by the arc of a circle or a similar curve, as shown.

This blank is upset between suitable dies, so as to give it the proper curvature according to the angle at which the pipes are arranged with reference to each other, and whereby at the same time the corners *e* of the blank are turned up, as shown in Fig. 5. The blank with its corners so turned up is then placed upon a suitable curved mandrel, upon which the corners *e* are closed down, as shown in Fig. 6, whereby the elbow is given the form of a curved connection of the two pipes A B. The ends of the latter are now inserted into the open ends of the elbow and secured therein by soldering, whereby at the same time the corners *e* of the elbow are firmly secured together and closed.

The elbow is in this manner readily and cheaply constructed and applied to the tubes which it is designed to connect; and as no seams are formed in the elbow, and its curved form enables the same to connect with the tubes without any abrupt jog or bend, it forms a neat and slightly connection for the tubes.

I claim as my invention—

An elbow for tin tubes, formed of a single blank of tin of the form shown, bounded by two straight sides meeting in a point and two straight sides starting from the outer ends of the first-mentioned sides, and connected by the arc of a circle or a similar curve, the blank being upset between suitable curved dies and secured to the pipes by soldering, whereby a curved elbow for the easy connection of two pipes arranged about at right angles to each other is formed of a single piece of tin without a seam, substantially as set forth.

JOHN W. ORPHY.

Witnesses:

W. P. McKILLIP,  
GEO. W. HAM.