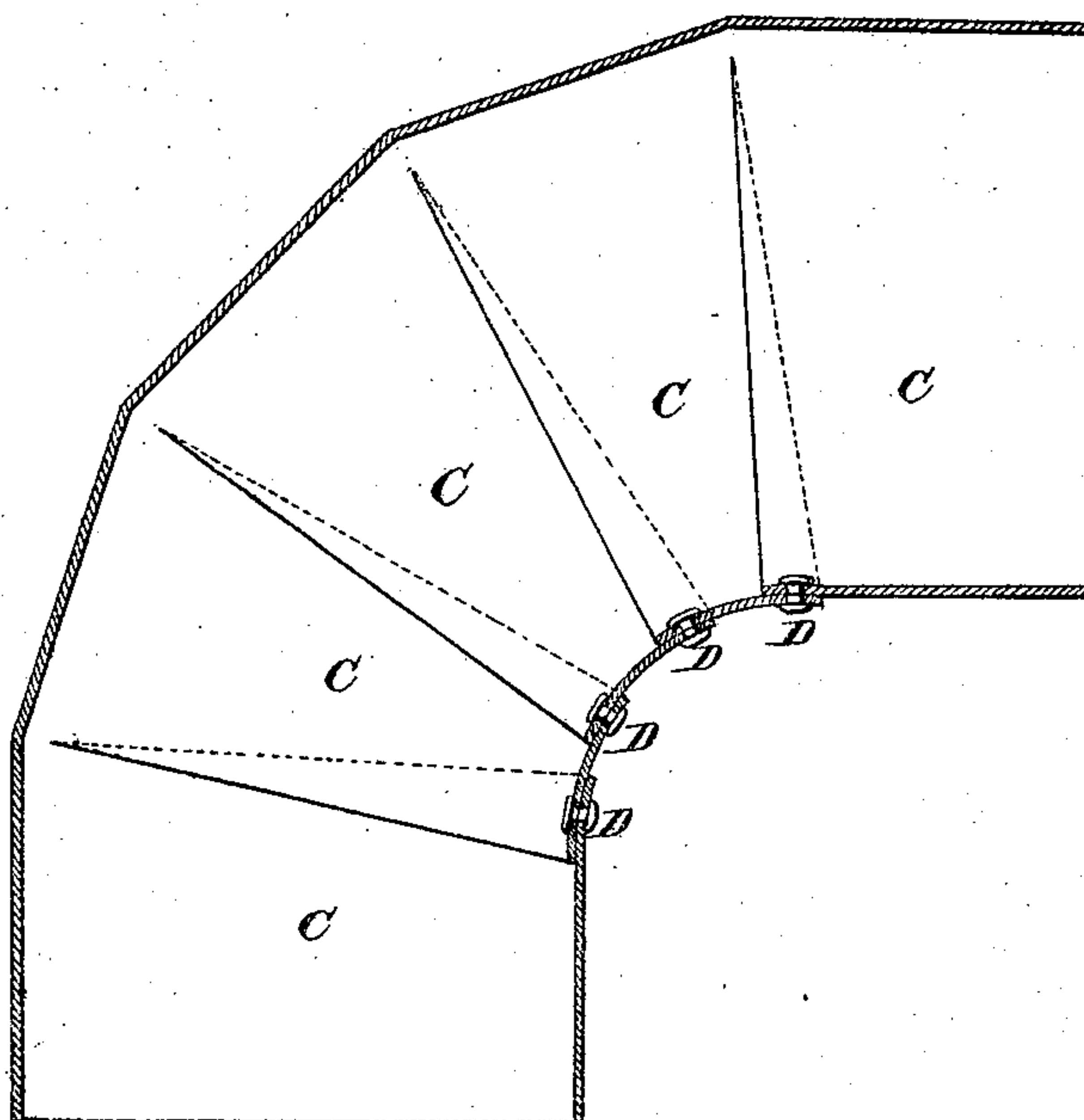


J. LEAS & W. H. FRANCE.  
Improvement in Pipe Elbows.

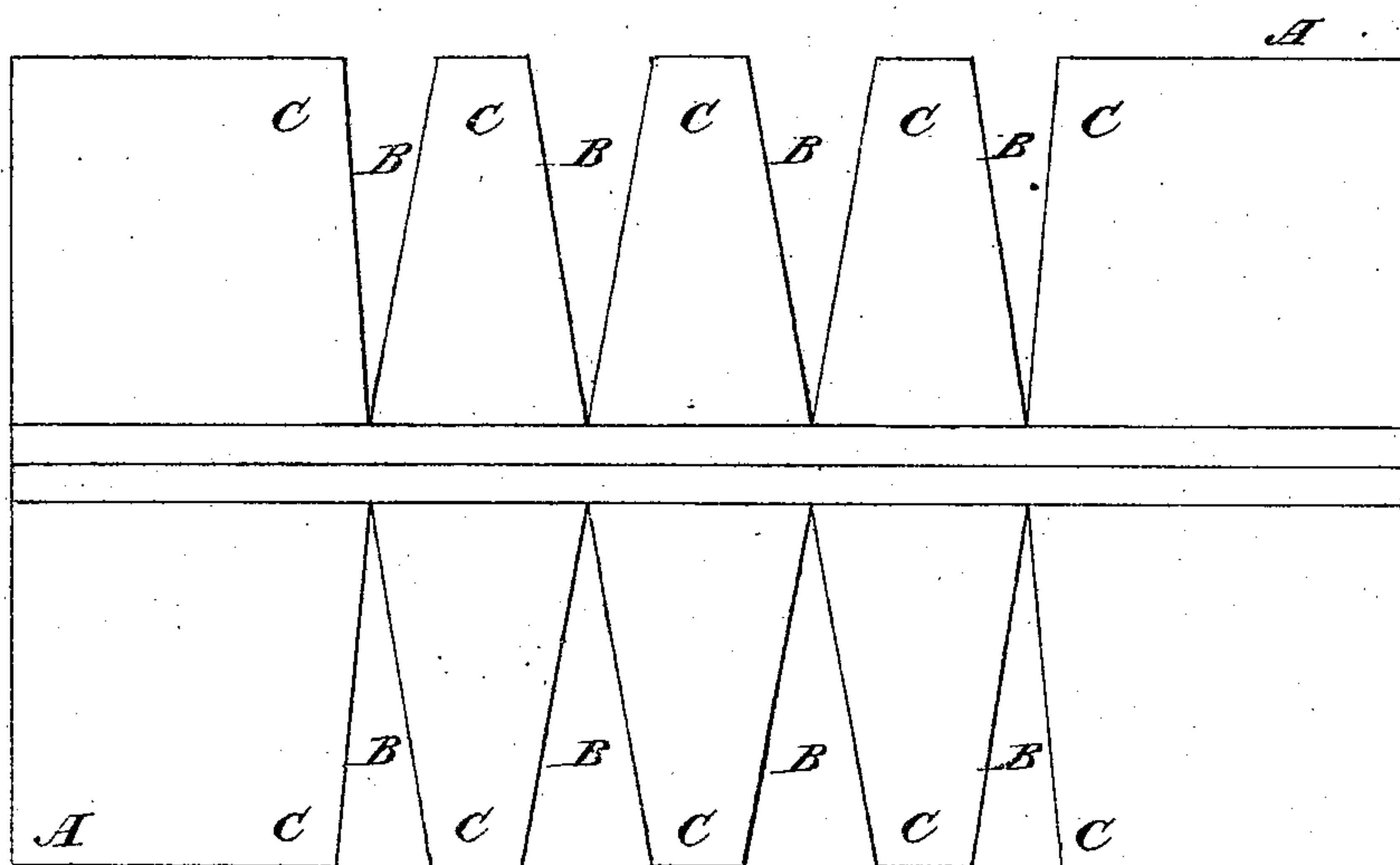
No. 119,621.

Patented Oct. 3, 1871.

*Fig. 1.*



*Fig. 2.*



Witnesses:

*Gustave Dietrich*  
*Francis W. Arde.*

Inventor:

*J. Leas*  
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Attorneys.

# UNITED STATES PATENT OFFICE.

ISAAC LEAS AND WILLIAM H. FRANCE, OF TERRE HAUTE, INDIANA.

## IMPROVEMENT IN PIPE-ELBOWS.

Specification forming part of Letters Patent No. 119,621, dated October 3, 1871.

*To all whom it may concern:*

Be it known that we, ISAAC LEAS and WILLIAM H. FRANCE, of Terre Haute, in the county of Vigo and State of Indiana, have invented new and useful Improvements in Making Stove-Pipe Elbows; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Our invention relates to improvements in the manufacture of stove-pipe elbows; and it consists in making them of one sheet of metal by cutting out say about four triangular pieces from each side, extending not quite to the center, at suitable distances apart; then rolling or bending the sheet to cut perpendicular into the form of a tube; then bending it so that the sections between the horizontal notches come together and lap; and finally riveting the ends and lapped edges of such sections, all as hereinafter described.

Figure 1 is a sectional elevation of a completed pipe-elbow, and Fig. 2 is a diagram of a sheet of metal with the notches cut in the sides ready for bending.

Similar letters of reference indicate corresponding parts.

A is a rectangular sheet of suitable length and breadth for the elbow, with four triangular notches, B, cut out of each side nearly to the

center and at suitable distances apart, beginning at such distances from the ends as the required length of the cylindrical ends of the completed elbow, and of such width and distances apart as to admit of the sheet so cut being bent so that one end will be perpendicular to the other. The sheet so cut is rolled into cylindrical form and then bent into the form represented in Fig. 1, with the edges of the sections C lapping each other. The ends also being lapped, as in Fig. 1, the whole are riveted together at D', completing the elbow.

We are aware that pieces have been cut out of the middle of a single sheet of metal and a stove-pipe knee made therefrom; and we, therefore, disclaim broadly making a knee of a single piece of metal, or by cutting pieces out of the inner portion of the sheet.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The method of forming stove-pipe knees from a single piece of metal by cutting from a rectangular sheet eight triangular pieces, four on each side of a central longitudinal strip, and then bringing together the parts into the form of a curved tube, as described.

ISAAC LEAS.

WILLIAM H. FRANCE.

Witnesses:

R. L. BALL,

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(112)