2 Sheets--Sheet 1.

F. DIECKMANN.

Improvement in Sheet-Metal Pipe-Elbow.

No. 127,583. Patented June 4, 1872.

Fig. 1.

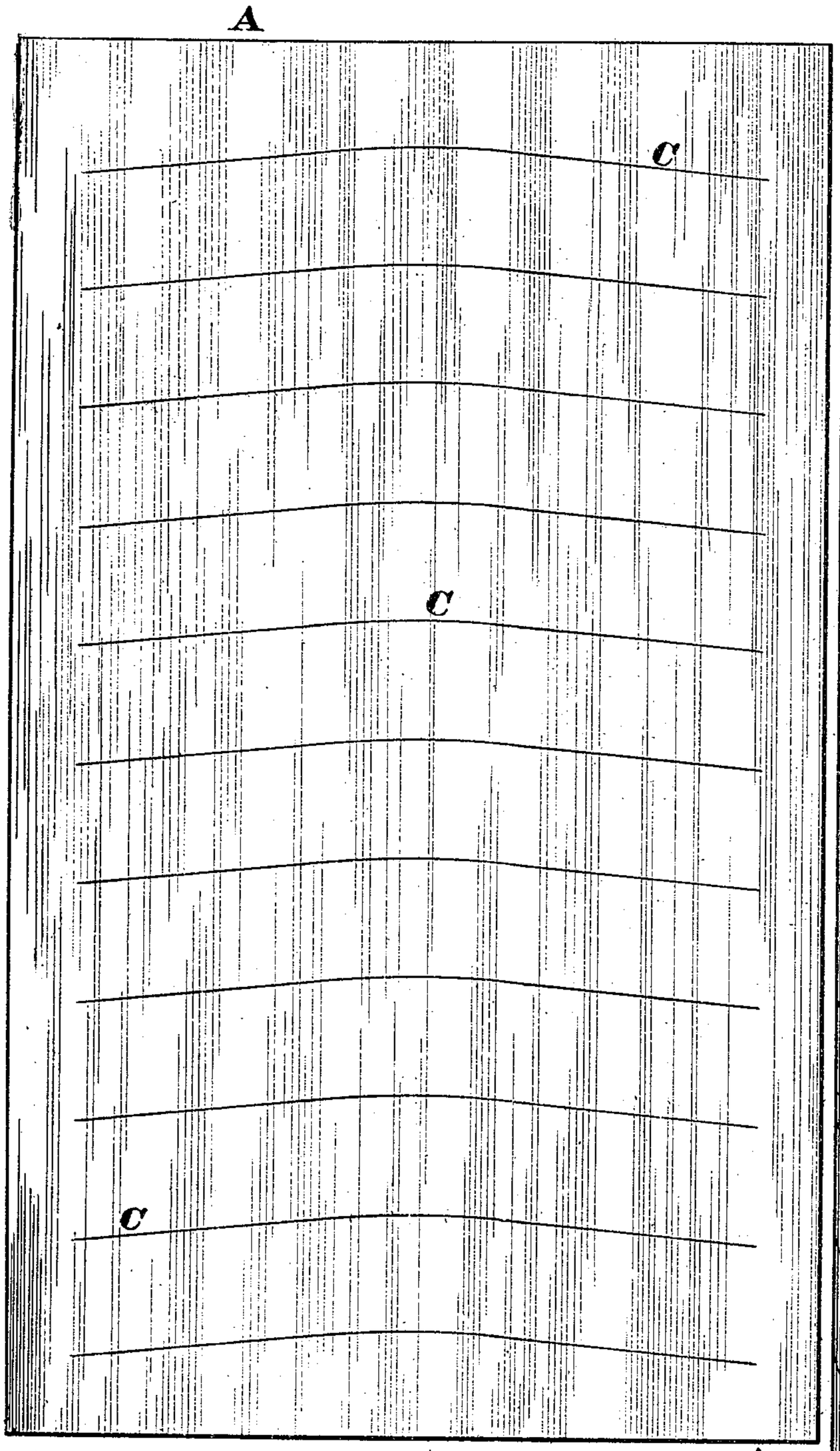
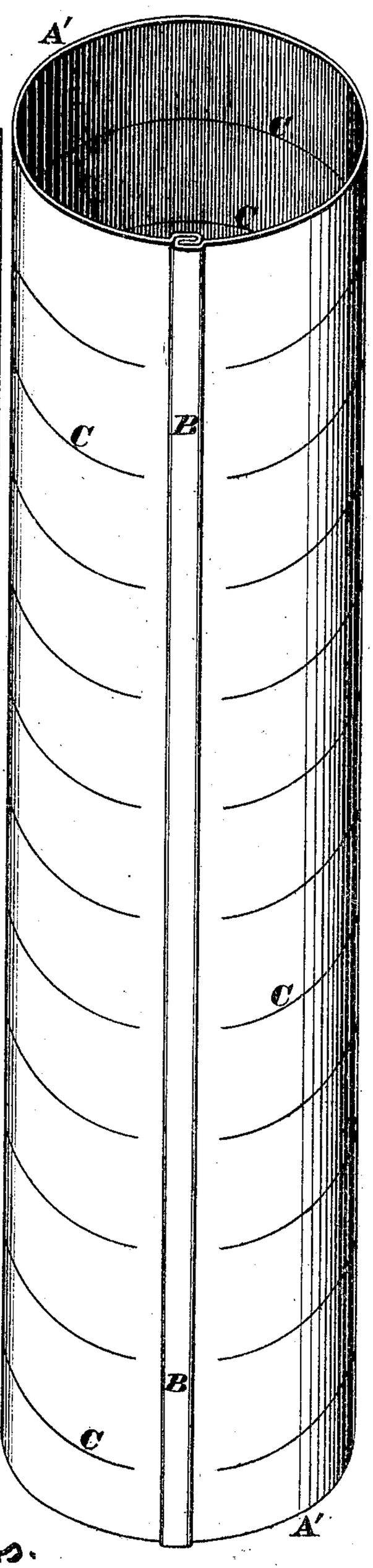


Fig. 2.



Attest.
Jas. H. Layman.
Walter Allen

F. Dieckmann
By Knight Bros.
Att'ys.

2 Sheets--Sheet 2.

F. DIECKMANN.

Improvement in Sheet-Metal Pipe-Elbow.

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Fig. 3.

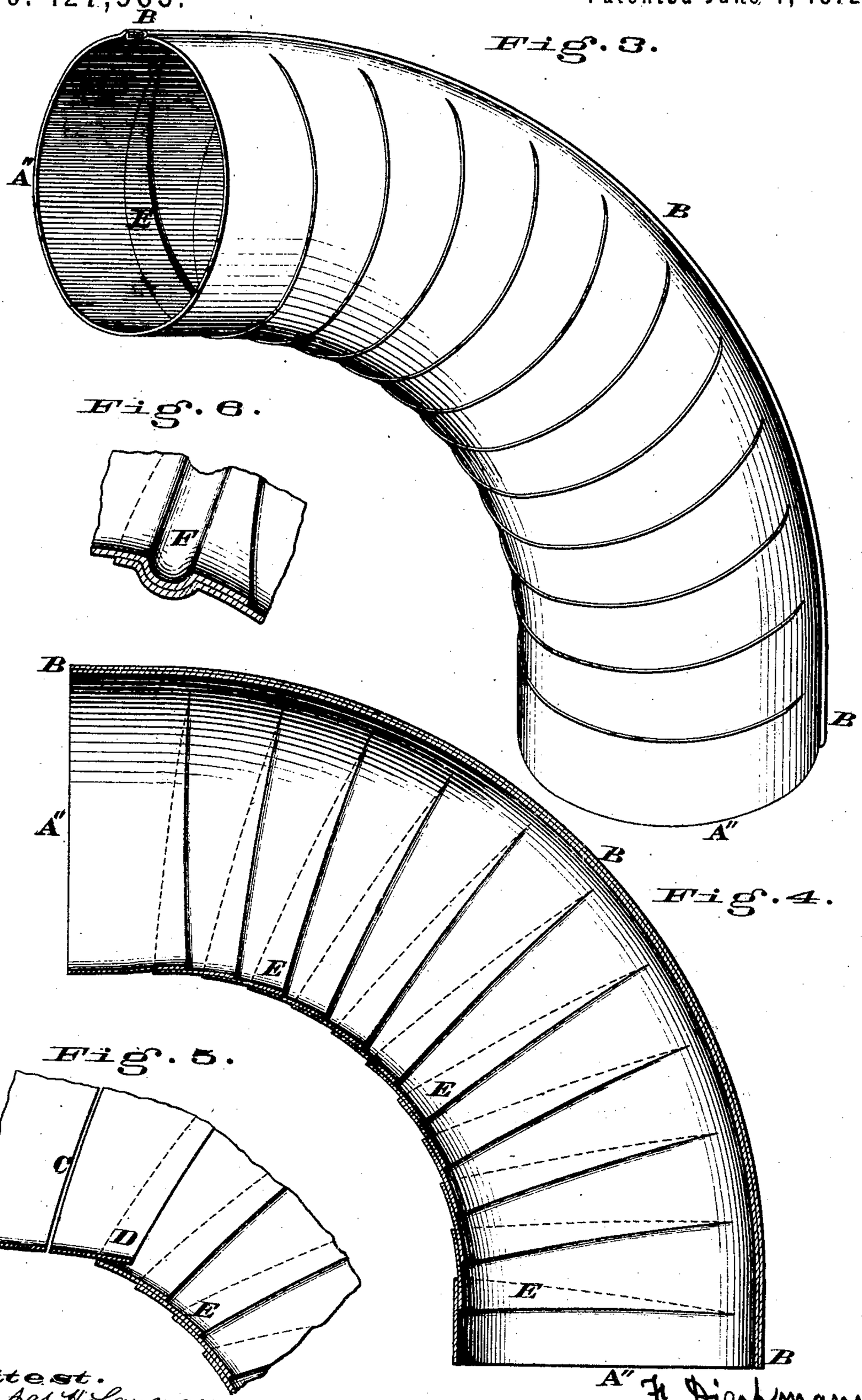

Fig. 6.

Fig. 4.

Fig. 5.

Attest.
Jas. H. Layman.
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127,583

UNITED STATES PATENT OFFICE.

FERDINAND DIECKMANN, OF CINCINNATI, OHIO.

IMPROVEMENT IN SHEET-METAL PIPE-ELBOWS.

Specification forming part of Letters Patent No. 127,583, dated June 4, 1872.

Specification of a new and useful Sheet-Metal Pipe-Elbow, invented by me, FERDINAND DIECKMANN, of Cincinnati, Hamilton county, Ohio.

My invention relates to a new and useful manufacture of curved pipe-elbows from a straight cylinder or tube of sheet metal. I take a rectangular piece of sheet metal of the proper dimensions, and, by means of suitable dies, I make a series of curved cuts nearly from side to side and transversely of the sheet, whose edges, being then united by double seaming, form a cylindrical section, which is then reduced to the form of an elbow by lapping and swaging the cut edges, in the manner hereinafter explained.

Figure 1 represents a piece of sheet-iron cut transversely in the manner alluded to. Fig. 2 is a perspective view of the cylindrical section formed therefrom. Fig. 3 is a perspective view, and Fig. 4 an axial section, of an elbow manufactured by my method. Fig. 5 is a diagram, illustrating my manner of cutting, lapping, and swaging the cross-joints. Fig. 6 is a diagram, showing a modification of my joint.

My mode of manufacture is as follows: I take a rectangular piece, A, of sheet iron, or other sheet metal, of proper dimensions and by means of a suitable die or cutter make across said sheet a series of equidistant incisions, C, of the represented curved form, or other suitable form. The longitudinal edges of the sheet metal thus prepared are then united by double seaming them to each other at B so as to form a straight cylinder, A′. One of the cut edges is then bent inward and pushed under the opposing edges, as at D, Fig. 3, and is then spread or swaged outward so as to fit closely within the said opposing portion, as at E. A succession of transverse laps, having been thus formed converts the originally straight section into a curved elbow, A″, such as represented by Figs. 3 and 4.

The above-described series of operations are performed wholly by means of automatic machinery, which I purpose making the subject of a patent.

Over the crimped elbow my manufacture has several material advantages. The comparatively slight violence done to the metal enables the use of a cheaper quality thereof. The laps employed by me may be placed nearer together than crimps can be, and, consequently, a shorter and to that extent cheaper section may be used. The double seam along the outer curve of the elbow operates to stiffen and to preserve its proper convexity of outline. The cut edges of the section lapped and swaged, as described, are more firmly bound together and result in a more durable and stiffer elbow than is possible to effect by crimping merely.

When designed for water-pipes my elbows may be redipped in tin or zinc to protect the cut edges.

With the above-described specialities of my invention other features may be combined. For example, the lapped and swaged portions may be beaded, as at Fig. 6, but such bead is not in the least essential to my method.

I am aware that a pipe-elbow has been made from a single sheet of metal by removing transverse sections thereof and drawing the edges together; but by my process of overlapping and swaging the sections a much stronger elbow is obtained, as I get a double thickness of metal on the inner curve of the elbow.

I claim as new and of my invention—

A pipe-elbow, constructed from a sheet of metal provided with a series of transverse incisions, having one of the edges of the sections thus formed passing inside the edge of the next section and swaged out, substantially as described.

In testimony of which invention I hereunto set my hand.

FERDINAND DIECKMANN.

Witnesses:
GEO. H. KNIGHT,
JAMES H. LAYMAN.