F. H. SMITH.
Column.

No. 213,786. Patented April 1, 1879.

Fig. 2.

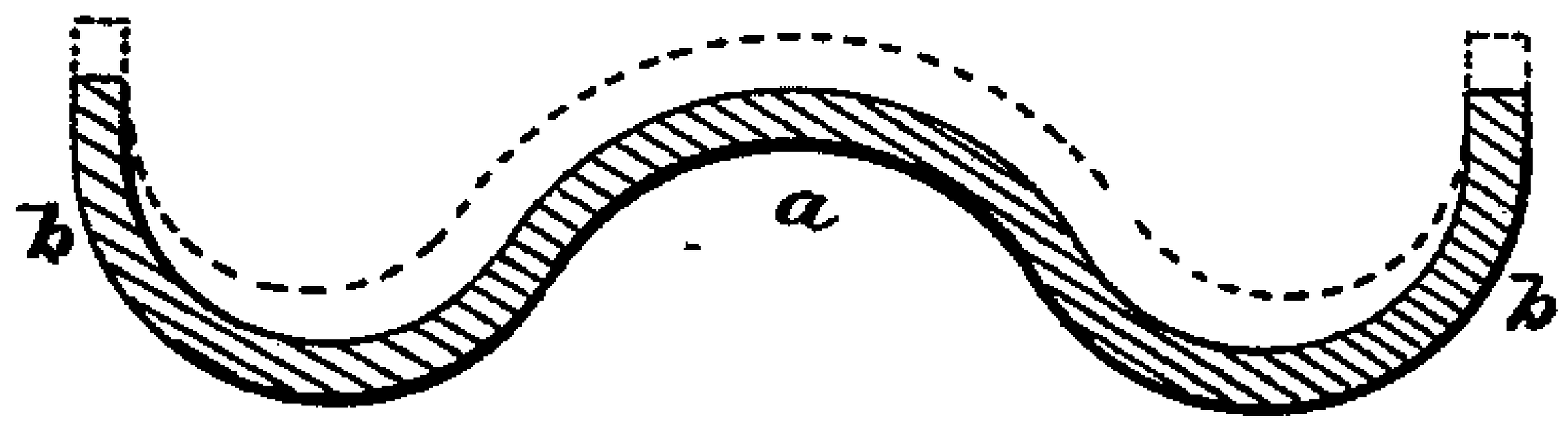


Fig. 1.

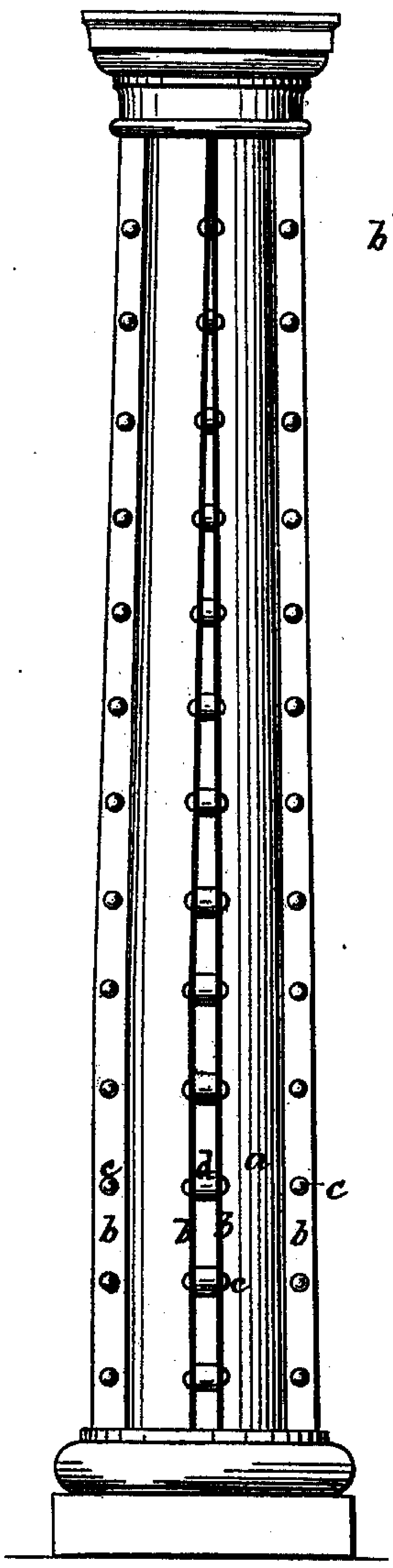


Fig. 3

Fig. 4.

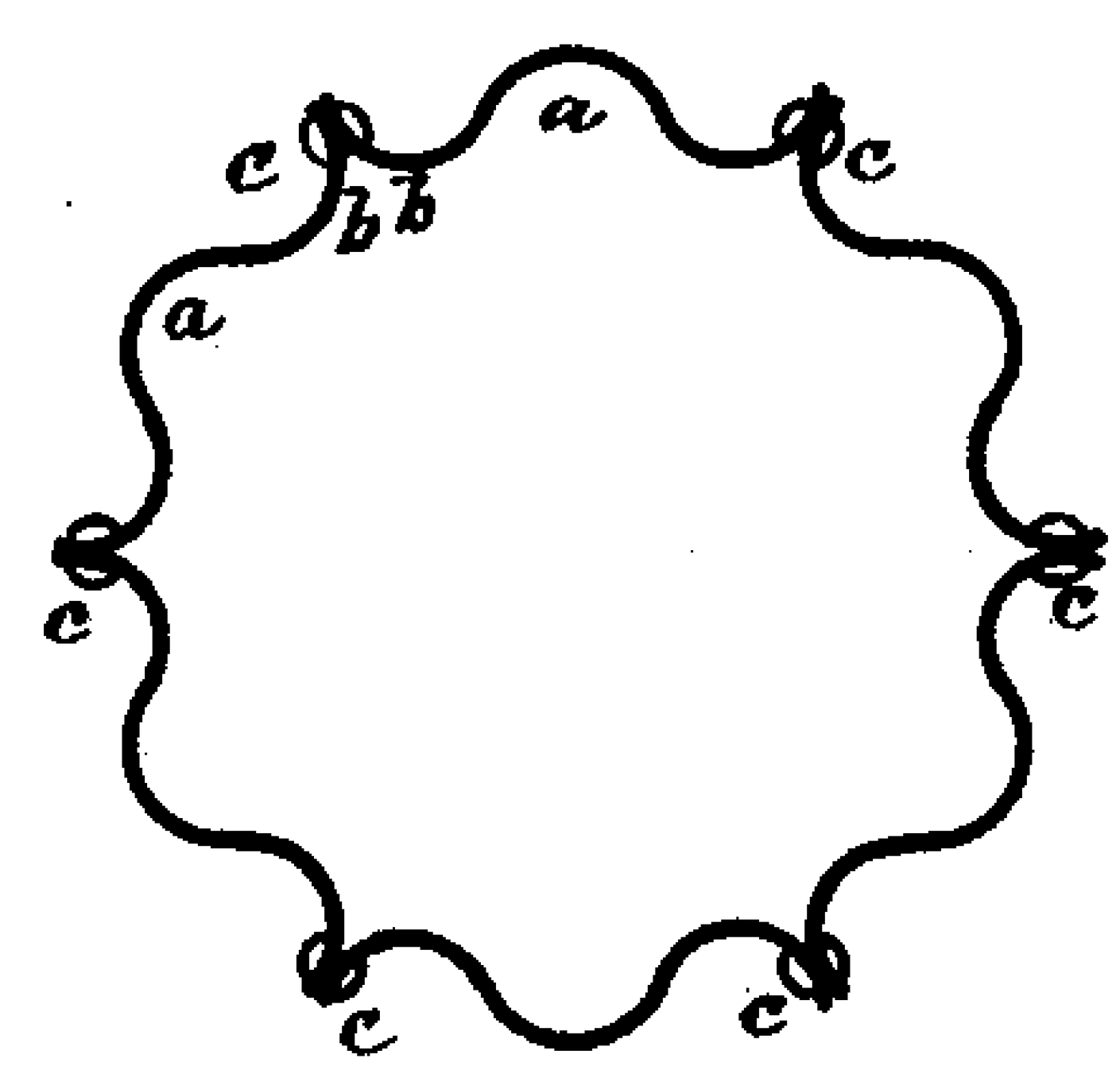


Fig. 5.

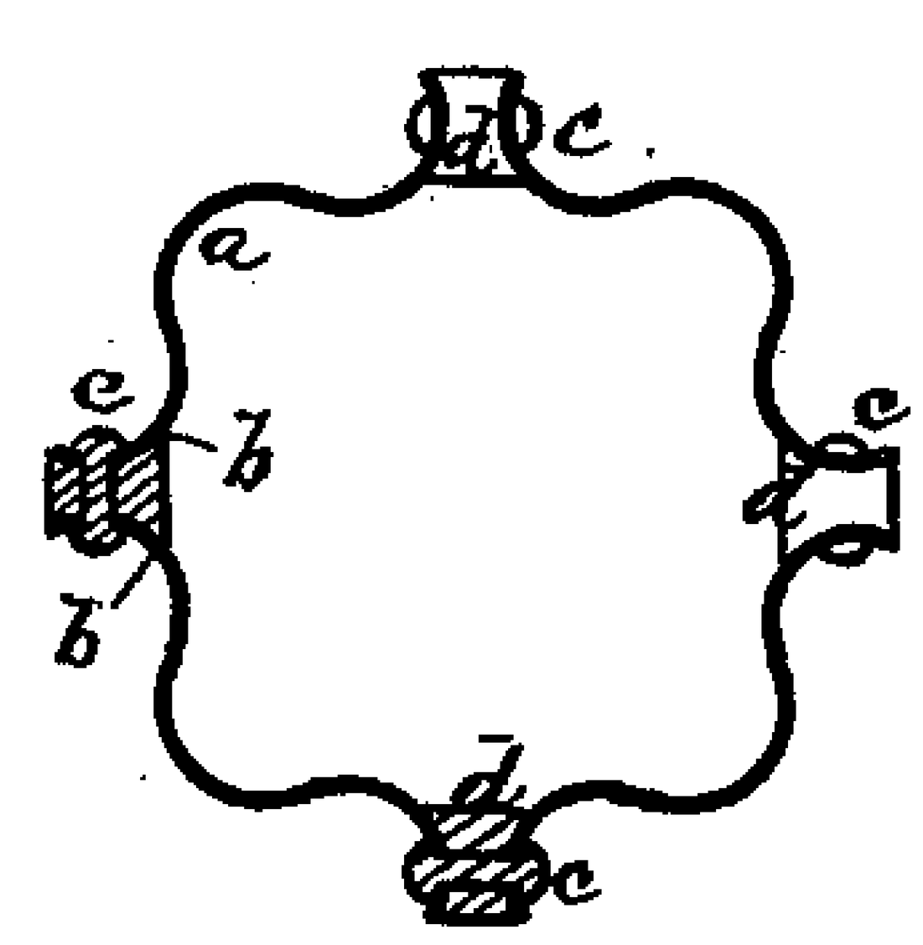


Fig. 6.

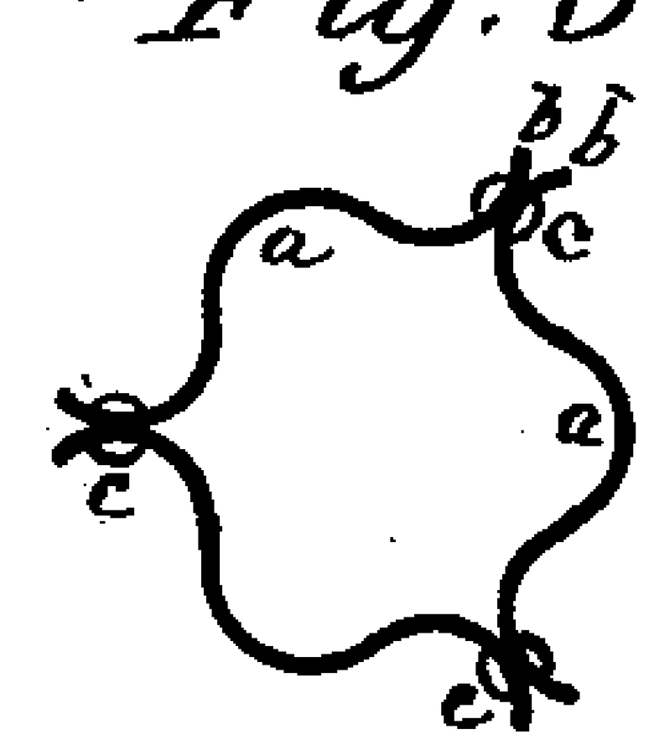
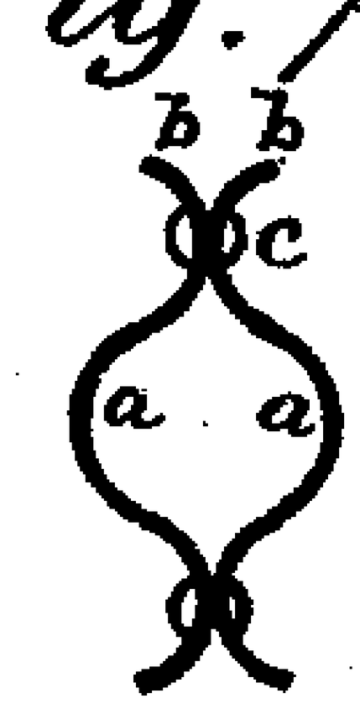


Fig. 7.



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UNITED STATES PATENT OFFICE.

FREDERICK H. SMITH, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN COLUMNS.

Specification forming part of Letters Patent No. **213,786,** dated April 1, 1879; application filed February 17, 1879.

To all whom it may concern:

Be it known that I, FREDERICK H. SMITH, of the city of Baltimore, Baltimore county, Maryland, have invented certain new and useful Improvements in Columns, of which the following is a specification:

My invention relates to columns made of segments or bars, two or more in number, put together in the form of the column desired, and bolted or riveted together along their contiguous edges.

It has heretofore been customary to build columns of segments formed or provided along their longer edges with flanges, as seen, for instance, in the well-known Phœnix and Reeves columns. The objection to this construction is, that each class or size of column requires a different angle for the flanges—*e. g.*, in a four-segment column the flanges must be set at a different angle from those of a six-segment column, and the curvature of the body of the segment changes also under the same conditions; consequently different sets of rolls are required for different classes or sizes of columns, thus necessitating a large outfit, involving heavy outlay and expense and an extensive plant. So, too, in the "fluted" column, a change of angle is required in the segments in making up columns of different numbers of segments. In the column known as the "Smith star column" the angles of the segment remain constant; but in said column ferrules or thimbles are interposed between the segments, and these ferrules or thimbles must be of different angles for each difference in the number of segments composing the columns.

Under my invention no change is required in the angle, either of segments or of thimbles, even when the latter are used; my object being to make a column of segments so constructed, or of such configuration, that one set of rolls will make segments for any size of column, and that any number of the same segments—that is, segments made by the same set of rolls—may be riveted together to form a column of any required size. I attain this result by making the segment with curved lips, instead of with the usual straight or plane-faced flanges, the said lips being curved outwardly to the extent of a quadrant or quarter-circle. I prefer a corrugated segment—that is to say, one whose transverse section has an outward central curve and side reverse curves, which terminate in the outwardly-curved lips.

The nature of my invention, and the manner in which the same is or may be carried into effect, will be understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a column embodying my invention. Fig. 2 is a transverse section of my preferred form of segment. Fig. 3 is a like section of another form of segment which can be used under my invention. Figs. 4, 5, 6, and 7 are transverse sections of columns of different sizes, made of corrugated segments, such as shown in Fig. 2.

The form of segment which I prefer to use is a rolled wrought-iron bar having the section shown in Fig. 2. The body of the bar is marked *a*, and *b b* are the curved lips, which turn up a full quadrant or quarter-circle, as shown. For segments of this shape but one set of rolls is needed, and this set will make segments for any size column, the thickness only of the segment being varied, and not the angle, as indicated in Fig. 2 by the dotted lines.

I here remark that the quarter-circle lips can, if desired, be formed in ordinary beading-rolls as a finishing pass from ordinary flat-bar grooves. This will keep all parts of the segment of uniform thickness, whatever that thickness may be, the quarter-circle lip or curve of contact-surface being still retained. Owing to the curved lips any number of these segments, from two to twenty, can be riveted or bolted together through their lips to form a column of any required size. At whatever angle they are placed to each other in the column their curved lips will always present contact-faces to one another.

In Fig. 4 a six-segment column is represented; in Fig. 5, a four-segment column; in Fig. 6, a three-segment column, and in Fig. 7 a two-segment column. In all these columns the segments are united by riveting through their contiguous curved lips, as indicated at *c*. They can be riveted with a close joint at the contact of their curved lips, as in Figs. 4, 6, and 7, or with interposed thimbles *d*, as in Figs. 1 and 5, making a column with open

joints. In lieu of thimbles, a double-concave bar may be used as a filling-strip in certain cases.

In lieu of the special form of segment shown in Fig. 2, other segments of different cross-section may be used. Nearly the same result, for instance, can be arrived at by making the segments mere channel-bars, as shown in Fig. 3; but these bars, instead of having flanges, must have curved lips *b*, as shown, turning up a full quadrant or quarter-circle, so that opening or closing the rolls by which they are shaped and made will not change the angle.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

A wrought-metal column composed of two or more segments formed along their longer edges with lips curved to a quadrant or quarter-circle, and bolted or riveted together at the point of contact of their lips with either an open or a close joint, substantially as set forth.

In testimony whereof I have hereunto set my hand this 15th day of February, 1879.

FREDERICK H. SMITH.

Witnesses:

JNO. T. MADDOX,

CHARLES S. MORAN.