

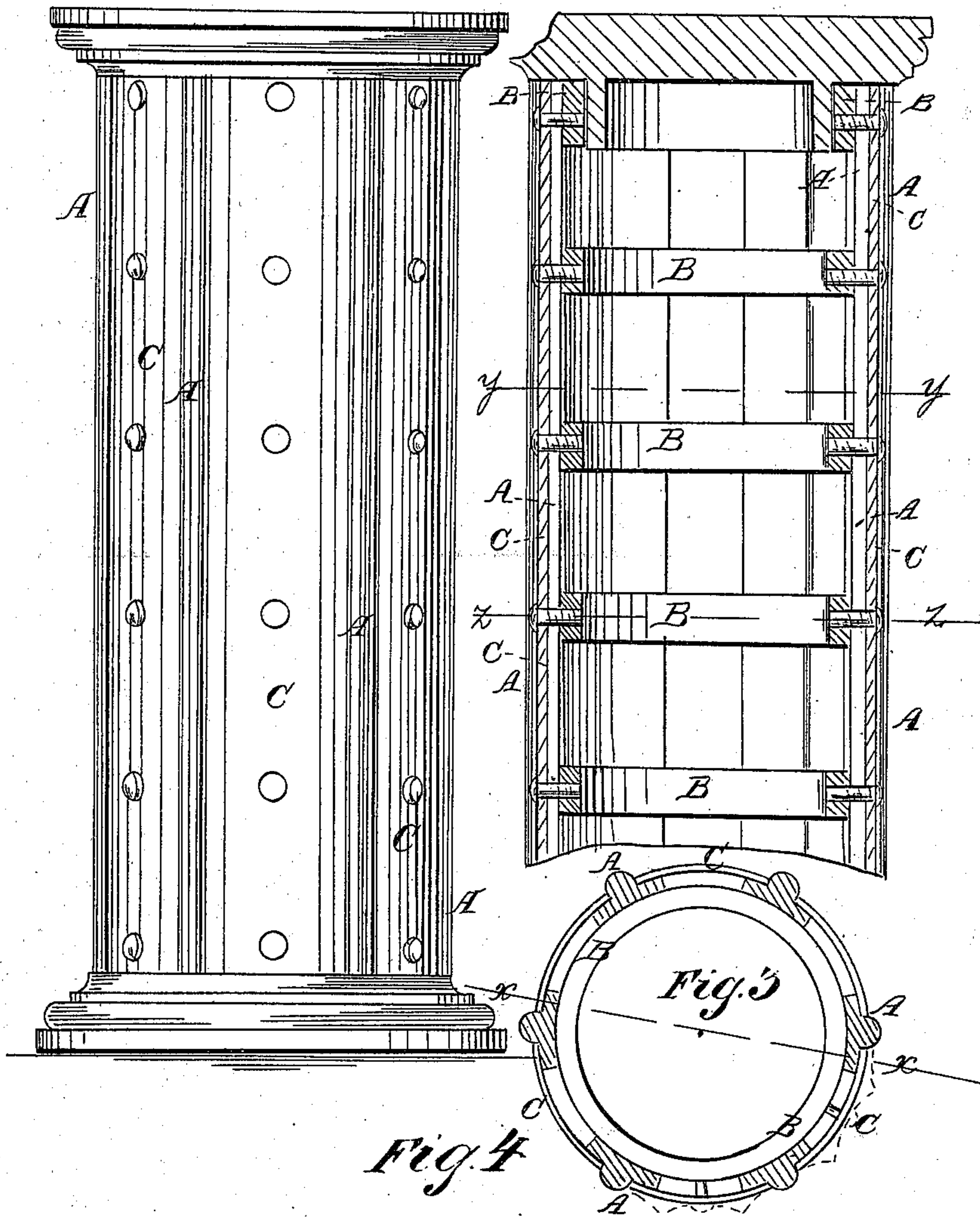
Walters & Shaffer, Column.

No. 83,425.

Patented Oct. 27. 1868.

Fig. 1

Fig. 2



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE WALTERS AND THOMAS SHAFFER, OF PHOENIXVILLE, PENN.

IMPROVED METHOD OF CONSTRUCTING WROUGHT-IRON COLUMNS.

Specification forming part of Letters Patent No. 83,425, dated October 27, 1868.

To all whom it may concern:

Be it known that we, GEORGE WALTERS and THOMAS SHAFFER, of Phoenixville, in the county of Chester and State of Pennsylvania, have invented a new and useful Improvement in Wrought-Iron and Steel Columns; 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 drawings forming part of this specification, in which—

Figure 1 is side view of our improved column or shaft. Fig. 2 is a longitudinal detail section of the same taken through the line *x x*, Figs. 3 and 4. Fig. 3 is a detail cross-section of the same taken through the line *y y*, Fig. 2. Fig. 4 is a detail cross-section of the same taken through the line *z z*, Fig. 2.

Similar letters of reference indicate like parts.

Our invention has for its object to furnish an improved iron or steel column or shaft for use in the construction of buildings, bridges, piers, trestle-work, compression-chords, &c., which shall be simple in construction, strong, and solid, and which may be manufactured at less expense than columns or shafts constructed in the usual manner; and it consists in the construction and combination of the various parts of the column, as hereinafter more fully described.

A are bars, which are made of the desired length of the column. The bars A are rolled or otherwise formed, with a central longitudinal rib or flange upon their outer sides, as shown in the drawing, and their inner sides should be concaved, to fit upon the outsides of the interior rings or bands B. The bands or rings B should be made of such a size as will form a column of the desired diameter and strength. The bars A are securely riveted or bolted to the outer sides of the rings or bands B, at equal distances apart, which distance depends upon the breadth of the bars C. The bars A and rings B thus form a skeleton column of great firmness and strength. C are bars, which are formed or rolled into the form of longitudinal segments of hollow cylinders, as shown by their cross-section in Figs. 3 and 4. The segmental bars C rest upon the outer sides of the bars A, with their edges

against the central rib or flange of said bars A, which bars thus act as skew-backs to sustain the strain of the bars C.

The bars C are secured in place by rivets, bolts or screws passing through their middle parts, as through the rings or bands B, as shown in Figs. 1, 2, and 4. By this construction, as the screws, bolts, or rivets by which the bars C are secured in place are tightened, the strain of the bars C from the arched form of their cross-section will act upon the bars A, two of the bars C acting upon each of the bars A, in opposite directions, as shown in the drawings, and at the same time the said screws or bolts, by which the bars C are secured in place as they are tightened, put the rings or bands B under tension, so that an equally beneficial effect is obtained from said bands or rings as there would be if said bands or rings were shrunk upon the outer side of the column.

It should be observed that the form of the bars C may be varied at pleasure; as, for instance, they may be plain, as shown in the drawings, or they may be fluted, or they may be of any other desired form, so long as they are concaved upon their inner sides, so as to produce the binding effect when they are strained to their places.

The bars C are shown in red in Fig. 3, as being made in such a shape as will form a column of the Doric order, while at the same time the concavity upon the inner sides of said bars C is retained, so as to obtain the desired binding strain when the bars C are drawn to their places by the bolts, screws, or rivets. It should also be observed that the bars C may be segments of a hollow cylinder, of a greater or less diameter than that of the column to be constructed, so that bars C, of precisely the same form and size, may be used for constructing columns of a greater or less diameter, as may be desired. By this construction, each of the bars C, being entirely independent of all the others, one or more of said bars C may be removed, so as to obtain convenient access to the interior of the column for painting or other necessary repairs, even when said columns are in use in buildings, compression-chords for bridges, or other superstructures. This construction also, by the convenience of varying the thickness of the segments C, enables the sectional area of the columns to be

varied at pleasure, which is of great importance to the engineer, who desires to have no more dead-load than his calculations allow him, while, at the same time, securing the requisite strength and firmness.

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

An improved column, formed by the com-

bination of the segmental bars C, skew-back-bars A, and interior rings or bands B, with each other, substantially as herein shown and described, and for the purpose set forth.

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Witnesses:

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