J. W. Murphy,

Column.

No. 110,154. Patented Dec. 13 1870.

Fig. 1.

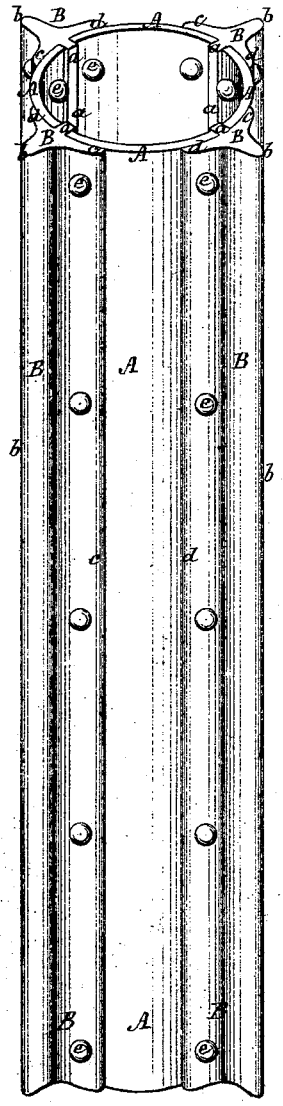
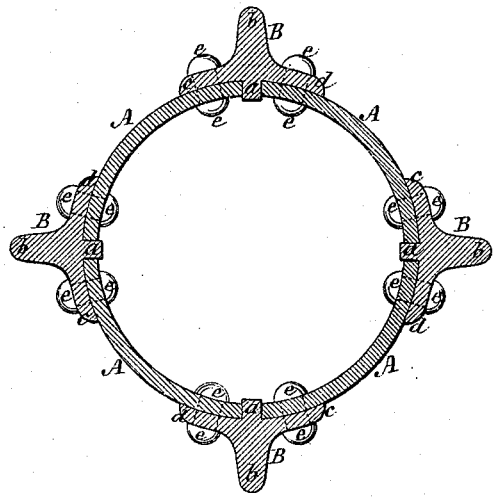


Fig. 2.



Witnesses.
Henry A. Whygatt
Edmund Masson

John W. Murphy.
By Atty A. B. Stoughton.

United States Patent Office.

JOHN W. MURPHY, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 110,154, dated December 13, 1870.

IMPROVEMENT IN WROUGHT-IRON COLUMNS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN W. MURPHY, of the city of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Wrought-Iron or Steel Columns or Posts for Houses, Bridges, or other structures; and I do hereby declare the following to be a full, clear, and exact description of the construction of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 represents, in perspective, a portion of a shaft or hollow column constructed after my plan.

Figure 2 represents a cross-section through the same.

I am aware that many forms of wrought-iron or steel columns, shafts, and posts have been designed, and that segments and ribs have been combined so as to form a column. I also use segments and ribs; but the latter are of peculiar construction, from which I gain important results in the strength of the column, and in its lightness and cheapness of construction.

My invention consists in constructing a wrought-iron or steel column, shaft, or post, by the combination of a series of segmental plates and a series of X-formed or four-flanged ribs, bolted or riveted together, as will be explained.

To enable others skilled in the art to make and use my invention I will proceed to describe the same with reference to the drawing.

The plates A are plain rolled plates and segments of a cylinder if the column is to be round; and flat, plain-surfaced or waved or corrugated if it is to be a many-sided column.

The ribs B are rolled of an X-form, that is, with four flanges, *a b c d*.

The ends or edges of the segments or plates A abut against the flange *a*, and are in contact with the flanges *c d*, through and by which they are riveted together at *e e*.

The flange *b* strengthens and stiffens the rib, and the finished column and the rib as a whole adds such strength to the column as is due to their distance from the center thereof without the increased weight that would be due to a column of the extreme diameter of the outer portions of the ribs; or, in other words, as the strength of a column is as to its diameter, my object is to increase that diameter for strength without actually making a full cylinder, which would a ld great weight to the structure.

It will be perceived that the flange *a* projects slightly inside of the inner perimeter of the column, and it can be extended in that direction any distance within the limits of the opening in the column.

The flanges *c d* being on the exterior of the cylinder or column practically add that much to the diameter of said cylinder.

The flanges *b* extending far beyond the flanges *c d* and the cylinder, too, add further to the diameter of said cylinder, so that I get a column of the capacity due to a diameter extending from extreme to extreme of the flanges *b*, while, as to weight, the cylinder falls far short of that diameter. It has the strength of a great diameter, but the weight of a diameter much less in extent.

The flanges *c d* on the exterior of the cylinder, and extending on both sides of the joints between the plates and ribs, add very material strength to the structure.

Having thus fully described my invention,

What I claim is—

In the construction of a wrought-iron or steel column, shaft, or post, the combination of the series of plates A and the series of X-formed or four-flanged ribs B, placed and riveted together, as herein described and represented.

JOHN W. MURPHY.

Witnesses:

OSCAR R. MEYERS,

F. W. GETZ.