F. SCHMEMANN.

IRON TRUSS BRIDGE.

No. 171,323. Patented Dec. 21, 1875.

Fig. 1.

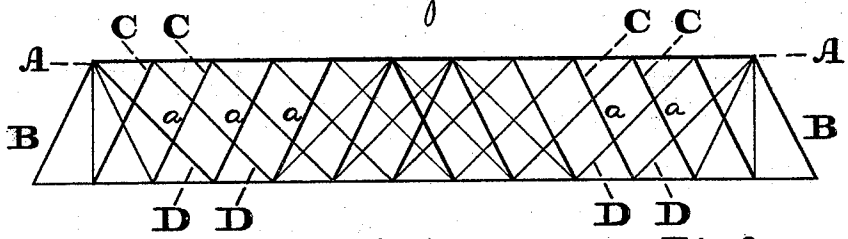


Fig. 2.

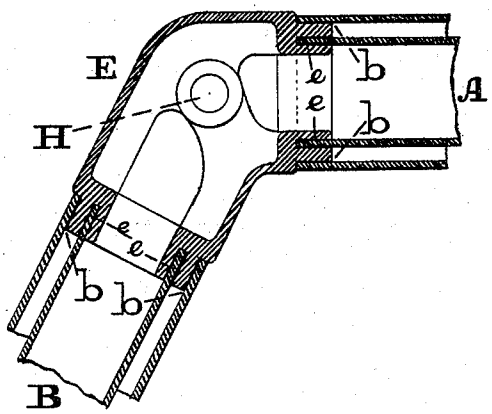


Fig. 3.

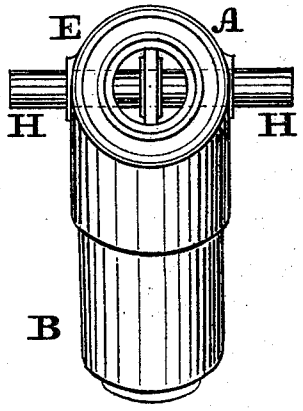


Fig. 4.

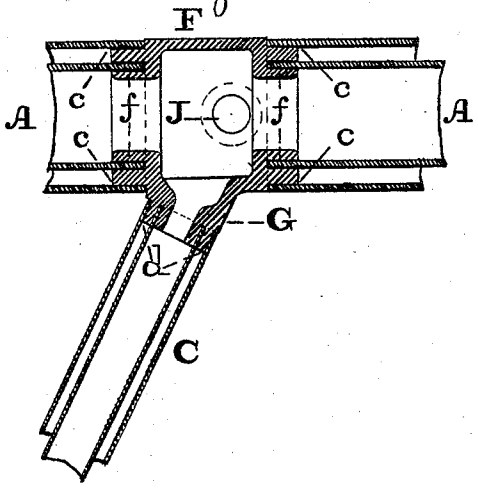
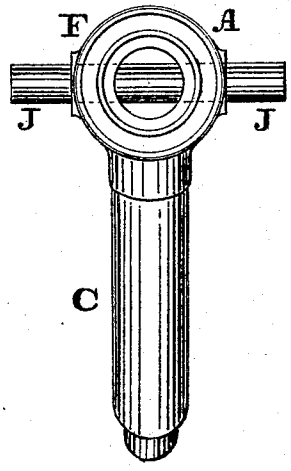


Fig. 5.



Witnesses:

A. P. Grant.

Louis F. Brous,

Inventor:

Fr. Schmemann.

by John A. Wiedersheim

Atty.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRIEDRICH SCHMEMANN, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN IRON TRUSS-BRIDGES.

Specification forming part of Letters Patent No. **171,323**, dated December 21, 1875; application filed November 6, 1875.

To all whom it may concern:

Be it known that I, FRIEDRICH SCHMEMANN, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Bridges; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side view of the bridge embodying my invention. Figs. 2 and 4 are longitudinal sections of detached portions thereof. Figs. 3 and 5 are end views thereof.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in constructing the upper chord, end posts, and intermediate posts of two or more tubes, inclosed one within the other. It also consists in knee-pieces having tenons for reception of the ends of the upper chord, and of the end pieces and pins for attachment of the tie-rods. It also consists in joint-blocks having tenons for reception of the ends of the upper chord and of the intermediate posts, and pins for attachment of the tie-rods.

Referring to the drawings, A represents the upper chord; B, the end posts; C, the intermediate posts; and D, the tie-rods. The end posts B incline toward the center of the bridge, and the intermediate posts C, which are in two series, also incline toward the center of the bridge. The tie-rods D extend from the upper end of one intermediate post to the base of an intermediate post second from the one from which it started, so that said rod crosses the post immediately next to it, at a point above the center *a* of said post. E represents the knee-pieces, to which are connected the upper chord and end posts. These pieces are formed of cast-steel, and their ends are tenoned, as at *b*, for the reception of the ends of the upper chord and end posts. F represents joint-blocks, which are formed of cast-steel, and their ends are tenoned, as at *c*, for attachment of the ends of the upper chord. On the lower side of the blocks there are projections G, whose ends are tenoned, as at *d*, for attachment of the intermediate posts C. The upper chord, end posts, and intermediate posts are formed of two or more tubes, inclosed one within the other, and, in order to attach them, respectively, to the knee-pieces and joint-blocks, the tenoned ends thereof are grooved, as at *e f*. H represents pins, projecting laterally from the knee-pieces E, and J represents pins projecting laterally from the joint-blocks F. These pins are designed for attachment of the tie-rods D.

It will be seen that when the upper chord, end posts, and intermediate posts, as constructed, are riveted or otherwise properly secured to the knee-pieces and joint-blocks, respectively, and the tie-rods attached in position, an exceedingly firm and reliable truss or structure will be produced. Moreover, the strength of the truss is increased by the disposition of the tie-rods C, whereby the strain is diffused over a larger surface, and this permits the upper chord and tie-rods to be constructed lighter than usually.

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

1. The upper chord, end posts, and intermediate posts, constructed of two or more tubes inclosed one within the other, substantially as and for the purpose set forth.

2. The knee-pieces E, with tenoned ends, in combination with the upper chord, and end posts formed of two or more tubes, inclosed one within the other, substantially as and for the purpose set forth.

3. The joint-blocks F, with tenoned ends, in combination with the upper chord and intermediate posts, formed of two or more tubes inclosed one within the other, substantially as and for the purpose set forth.

4. The upper chord A, end posts B, and intermediate posts C, each made of two or more tubes inclosed one within the other, and the tie-rods D, in combination with the knee-pieces E and joint-blocks F, formed with grooved tenoned ends, and pins H J, substantially as and for the purpose set forth.

FR. SCHMEMANN.

Witnesses:

JOHN A. WIEDERSHEIM,

A. H. HOECKLEY.