(No Model.)

J. VANES.

GIRDER.

No. 327,360. Patented Sept. 29, 1885.

Fig. 1.

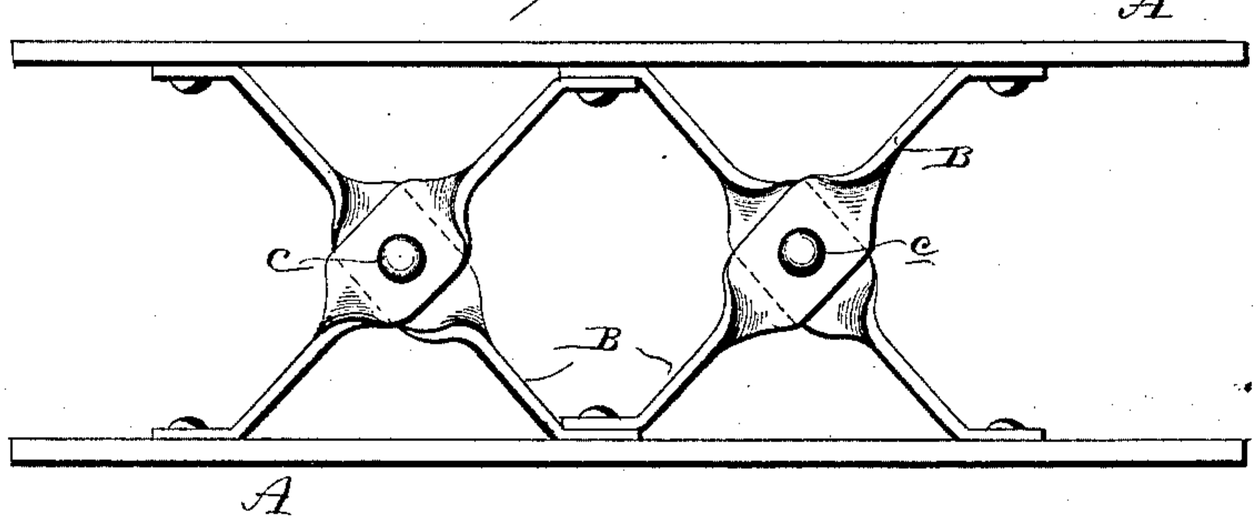


Fig. 2.

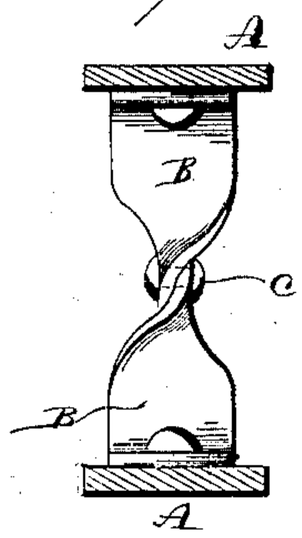


Fig. 3.

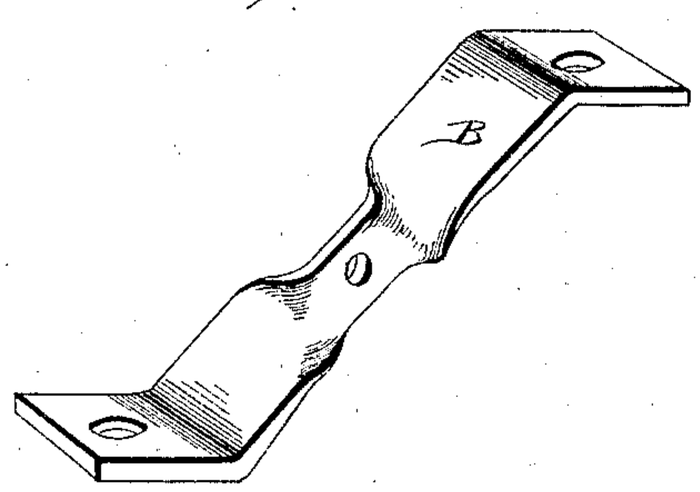
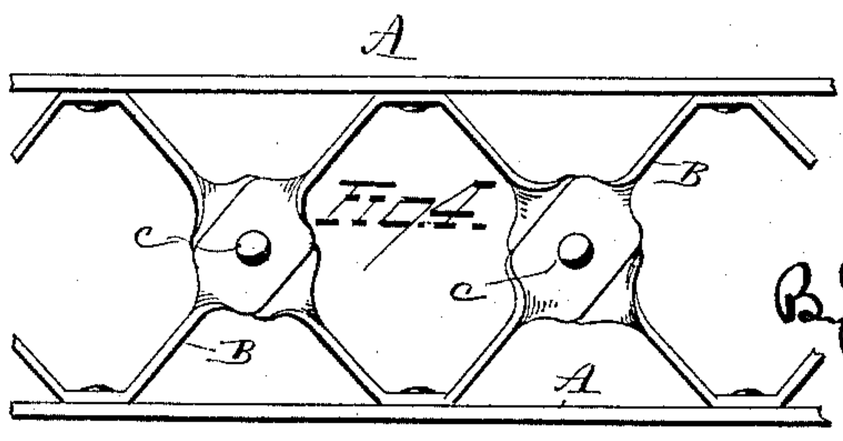


Fig. 4.



WITNESSES

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GIRDER.

SPECIFICATION forming part of Letters Patent No. 327,360, dated September 29, 1885.

Application filed July 18, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOHN VANES, of Brazil, in the county of Clay and State of Indiana, have invented certain new and useful Improvements in Girders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in metallic girders, the object of the same being to provide a girder that can be manufactured at a comparatively small initial cost, that will be strong and durable, and that will permit of the utilization of material heretofore considered unfit for the construction of girders; and with these ends in view my invention consists in the details in construction and combinations of parts, as will be more fully described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a view in side elevation of a girder embodying my invention. Fig. 2 is a vertical sectional view of the same on the line *x x*. Fig. 3 is a detached view of one of the bars, and Fig. 4 is a modification.

A represents two flat bars, parallel or otherwise, connected together by a web composed of a series of lattice-bars, B. These bars B are arranged in pairs in the shape of an X, and are made of flat strips of malleable metal, the central portion of each of which is bent or turned at right angles, so that the flat faces of the bars of each pair will come together and form an extended bearing-surface, and permit the bars to be secured together at their centers by bolts or rivets *c*.

The bars B pass between the bars A in a diagonal direction, and the opposite ends of the bars B are bent so as to rest parallel with the bars A, and are secured thereto by bolts or rivets.

The adjacent ends of the bars B can be secured directly to the bars A, or they can overlap or rest on the bent ends of the next adjacent pair. By this latter method a single rivet can secure the adjacent ends of two bars B to one of the bars A.

The bars B are narrower than the bars A, so as to permit joists or masonry to be supported by the girder between the bars A. Girders thus constructed are lighter than the ordinary angle-iron girder, can be manufactured at a less cost, are strong and durable, and adapted for all purposes to which the ordinary girders are employed.

Instead of bending the lattice-bars at their centers, they can be bent at one side of the centers and answer the same purpose. Again, instead of forming each bar separately, two or more of the bars can be formed integral, as shown in Fig. 4.

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

In a girder, the combination, with the outer bars, of the flat lattice-bars centrally twisted, as described, and arranged in pairs, the bars of each pair being secured to the outer bars and to each other, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN VANES.

Witnesses:
SAMUEL W. CURTIS,
JOHN C. BRITTON.