

JOHN H. DIEDRICHS.
Improvement in Bridges.
No. 125,182.

Patented April 2, 1872.

Fig. 1.

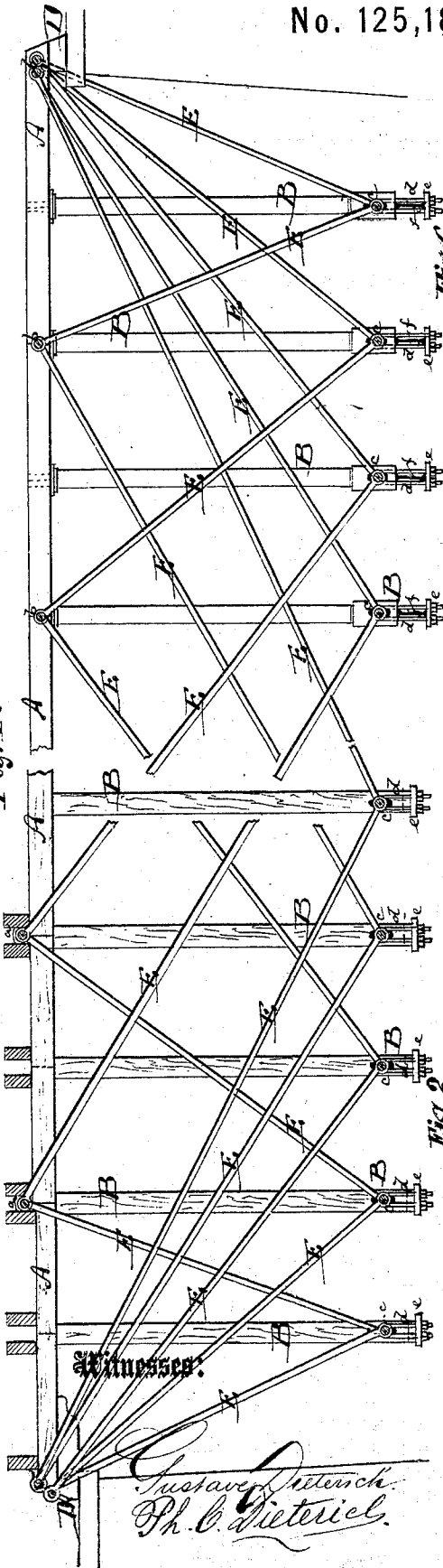


Fig. 6.

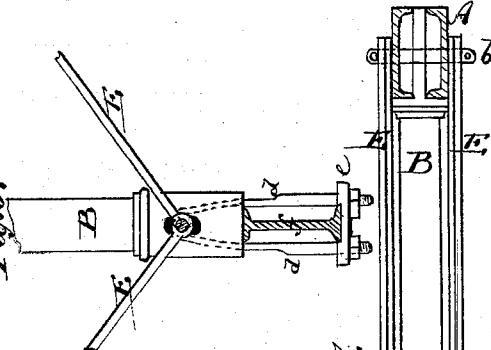


Fig. 4.

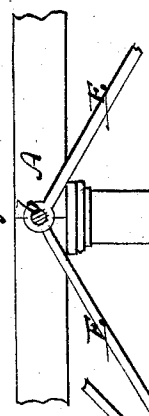


Fig. 5.

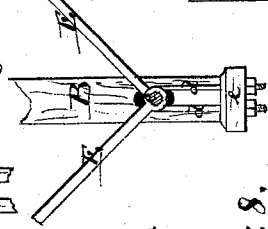


Fig. 2.

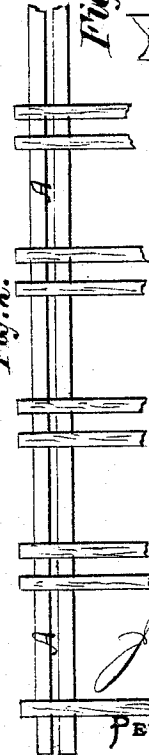


Fig. 3.

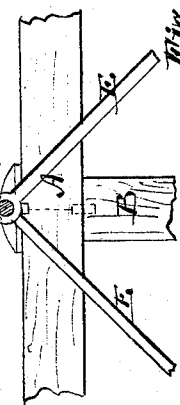


Fig. 8.

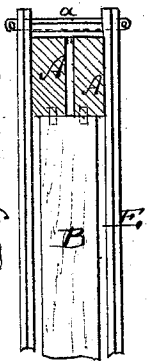
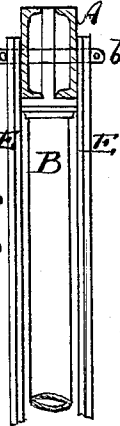


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN H. DIEDRICH, OF RICHMOND, VIRGINIA.

IMPROVEMENT IN BRIDGES.

Specification forming part of Letters Patent No. 125,182, dated April 2, 1872.

Specification describing a new and Improved Suspension Truss for Bridges, invented by JOHN H. DIEDRICH, of Richmond, in the county of Henrico and State of Virginia.

Figure 1 represents a partial side view of my improved suspension-truss for bridges. Fig. 2 is a detail plan view of part of the top chord and cross-beams. Figs. 3 and 4 are detail side views on an enlarged scale of the top-chord connections with the tie-rods, showing modifications in the connection. Figs. 5 and 6 are detail side views, having the lower fastening of the tie-rods with modifications. Figs. 7 and 8 are transverse sections of the top chord and connections in the two modifications.

Similar letters of reference indicate corresponding parts.

The object of this invention is to produce a practical suspension-truss for bridges, which shall be economical in construction, durable, though light, and of graceful appearance, and in which a greater proportion of strength may be derived from a given quantity of material than in any other truss system now in use. My invention consists principally in a novel judicious distribution of the tie-rods that connect the lower ends of the pendent posts with the top chord of the bridge.

A in the drawing is the top chord of the bridge. B B are the posts, suspended from the same at suitable distances apart from each other. There should be an uneven number of such posts on every top chord. The ends of the chord are rested on the buttresses D D in proper manner. E E E, &c., are the tie-rods or braces connecting the lower ends of the posts with the buttresses and top chord. These tie-rods are applied in the following manner: From the lower end of each post project two tie-rods in opposite directions, but at equal angles, one to the nearest buttress, the other to the top chord. This will cause every post to be connected with but one buttress, except the middle post, which is united to both. At the upper ends only every alternate post is braced, as shown, provided the posts are all at equal distances apart from each other, which is preferable. The top chord and posts may as well be made of wood as of metal. In the first case, the upper ends of the tie-rods are secured, where they join, to boxes *a a* that are placed upon

the top chord, as indicated in Figs. 3 and 8. In the other case, the connecting-bolts *b* may pass directly through the metallic top chord, as in Figs. 4 and 7. In Fig. 1 both forms are shown—the metallic top chord and posts on the right, those of wood on the left. The lower ends of the tie-rods are, where they meet at the posts, united by bolts *c*, that pass through vertical slots in the posts. Straps *d d* are laid around these bolts, and passed through plates *e* that form the lower ends of the posts, and provided with nuts, as shown. By this means of fastening the lower ends of the tie-rods the same are made adjustable with extreme nicety to obtain the requisite tensions, position of top chord, &c. Transverse beams *f* may be supported below the posts on the plates *e*, as shown in Figs. 6 and 7.

Contraction and expansion by cold and heat cannot injure or strain the parts of this bridge, as the tie-rods projecting from each post are of equal length. A lateral shifting of the connecting-pins is thereby made impossible from the above causes, which is an item of great importance, and an advantage of my system over most others now in use. The system recommends itself further on account of the equal thickness of the rods throughout for bridges of a considerable length, only the rods projecting from the posts nearest the middle may be made somewhat stronger. Other advantages are, that by the proper distribution of tie-rods the top chord is relieved from excessive strain, and will, therefore, be more durable; that special bracing of panels, &c., is unnecessary; and that the general appearance is harmonious and graceful.

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

The improved suspension truss-bridge, formed of chords A A, posts B, and tie-rods E, when said rods are arranged to project in pairs from the lower end of each post, one of each pair extending to the abutment, and the other extending an equal or nearly equal distance in the opposite direction, and connecting with the top of a post, all as shown and described, for the purpose specified.

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