

M. S. & H. B. CARTTER.

Improvement in Truss-Bridges.

No. 127,564.

Patented June 4, 1872.

Fig. 1.

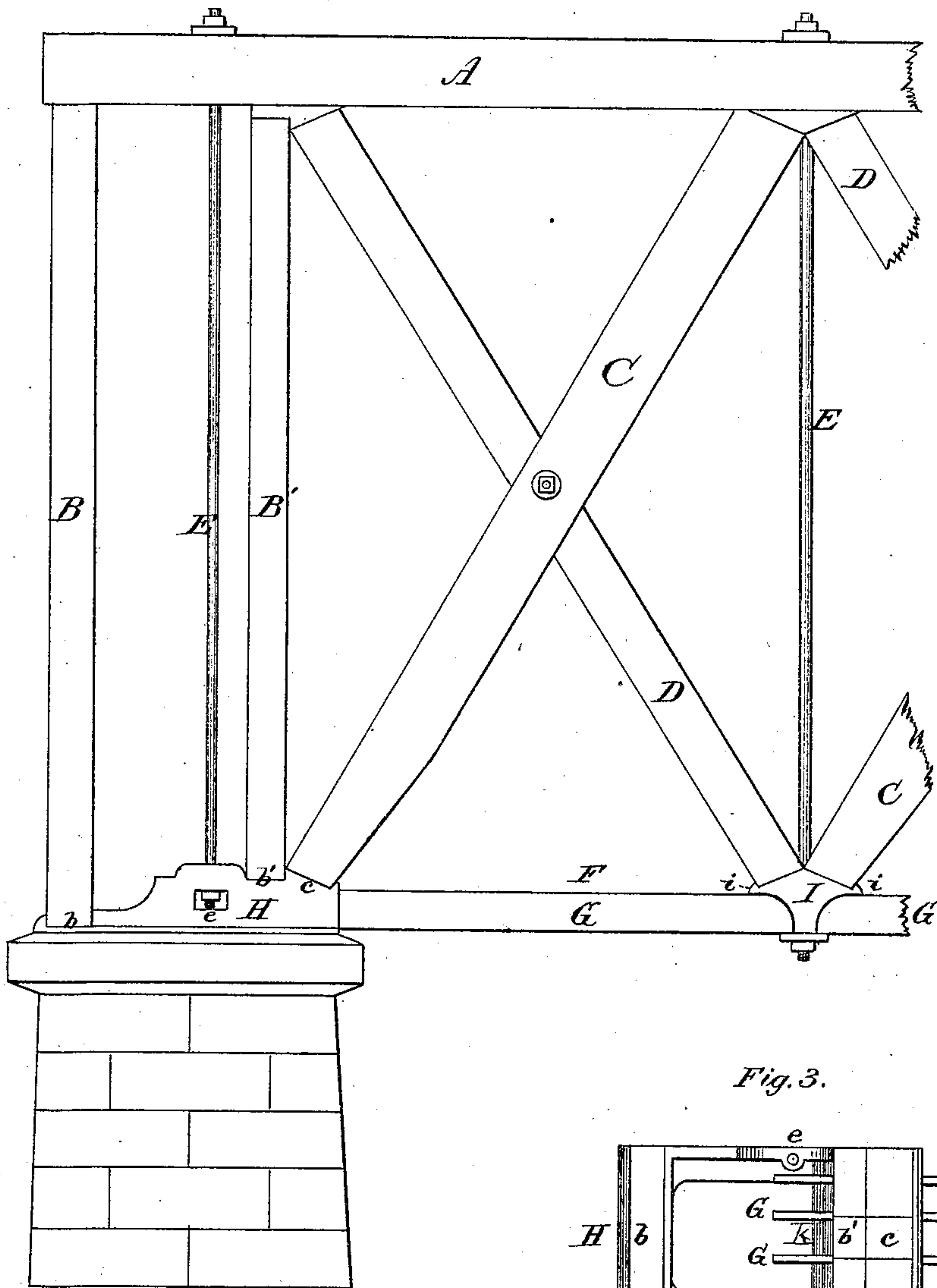


Fig. 2.

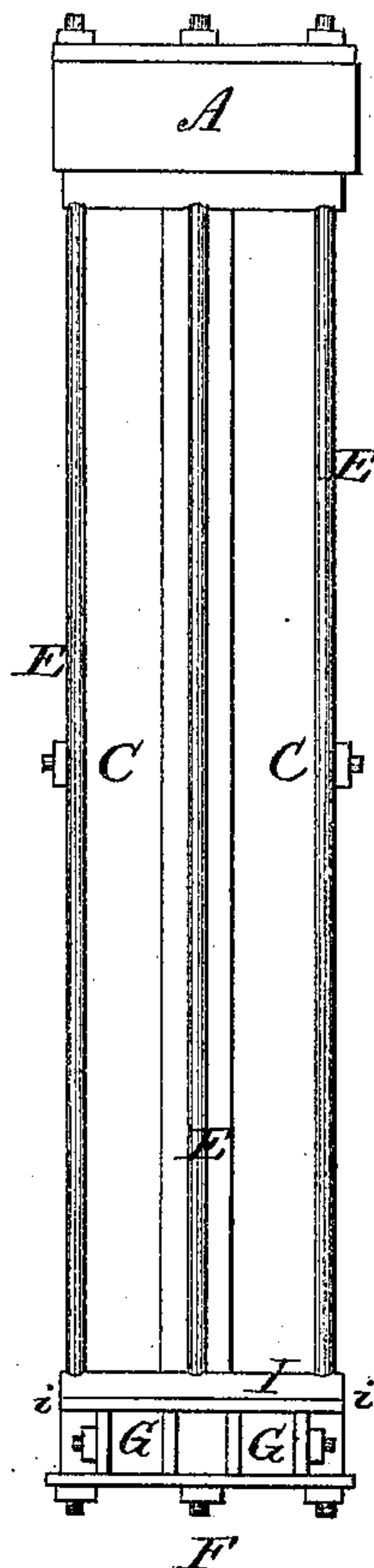
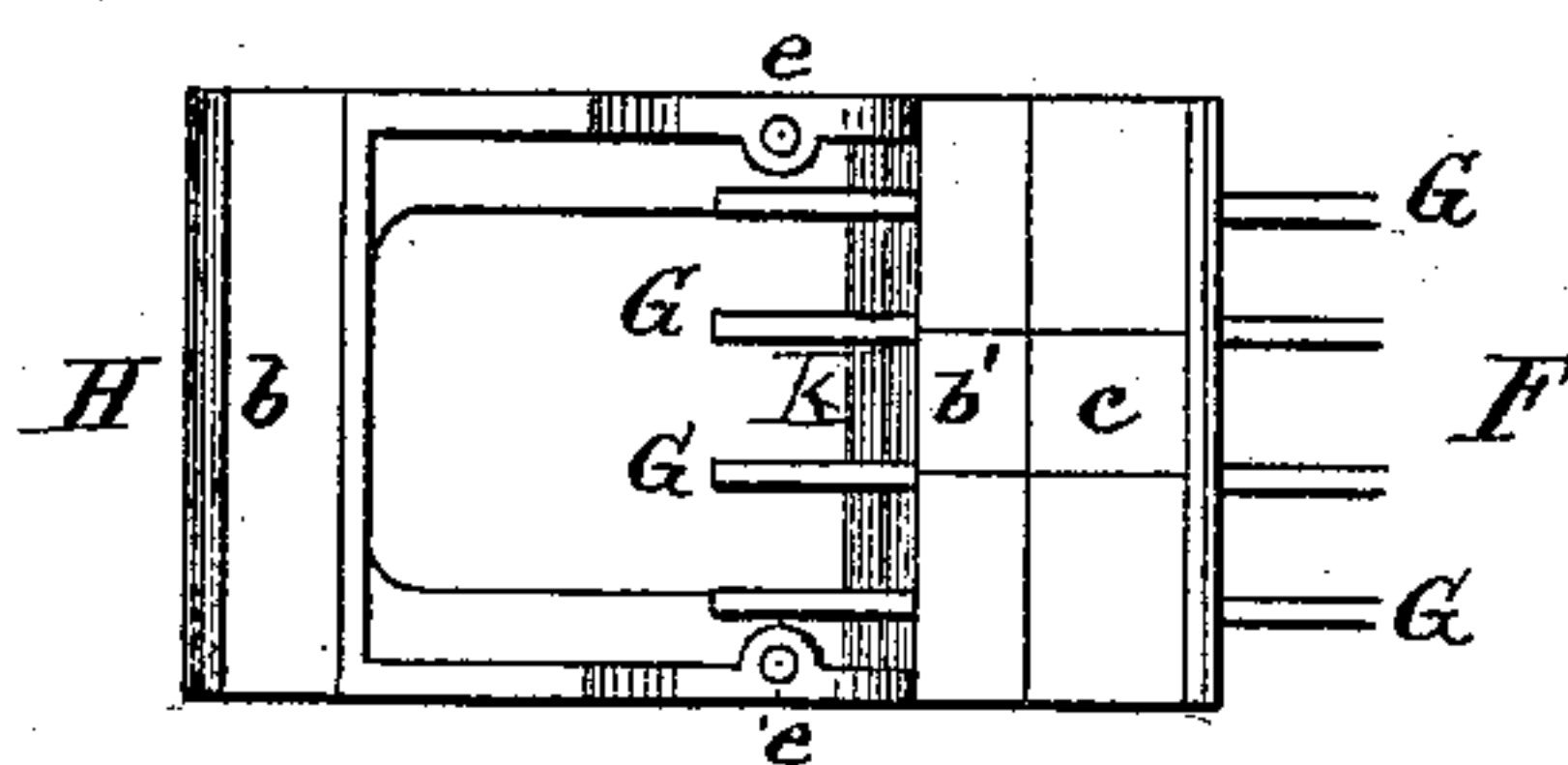


Fig. 3.



Witnesses.

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Orindle and Co. civil
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Fig. 4.

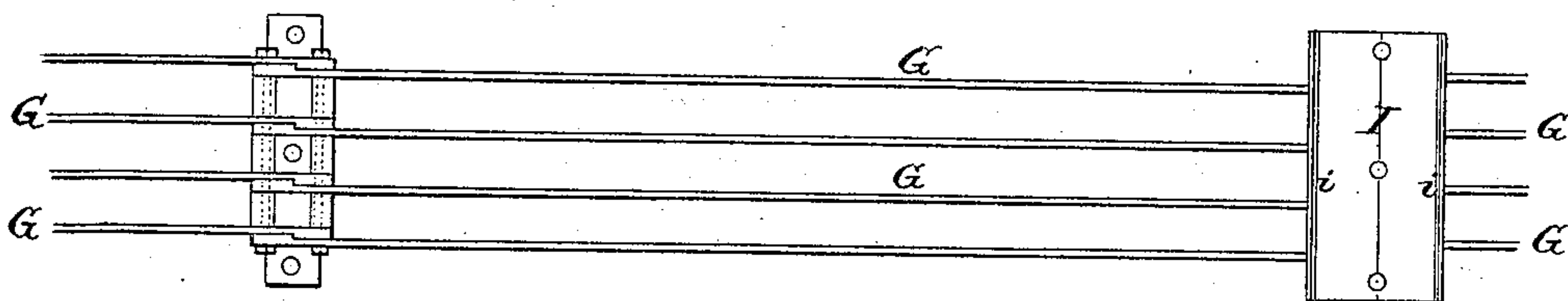


Fig. 5.

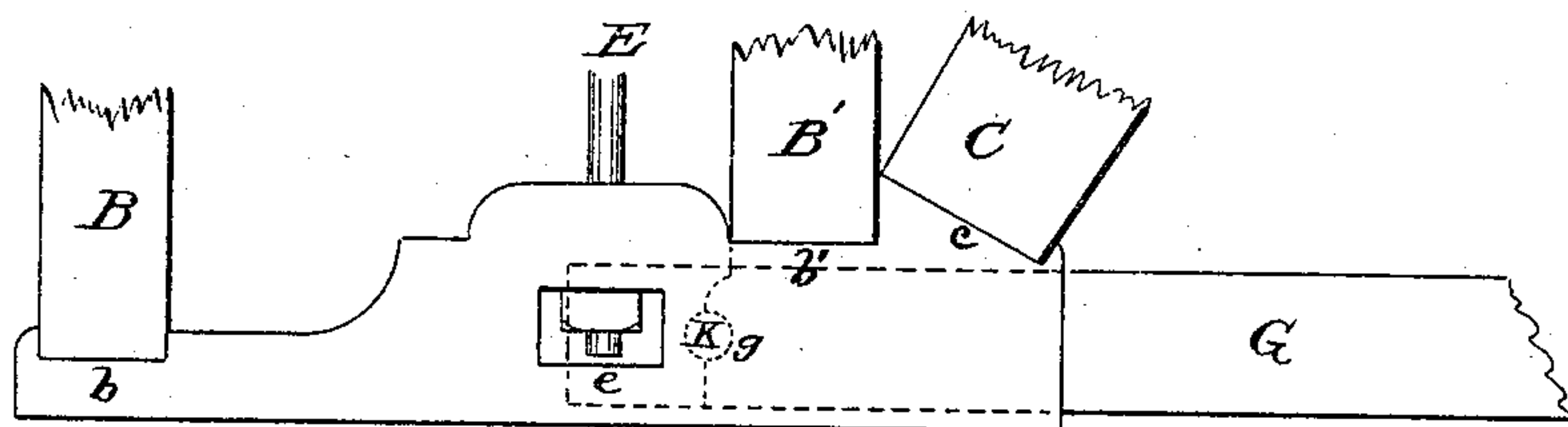


Fig. 6.

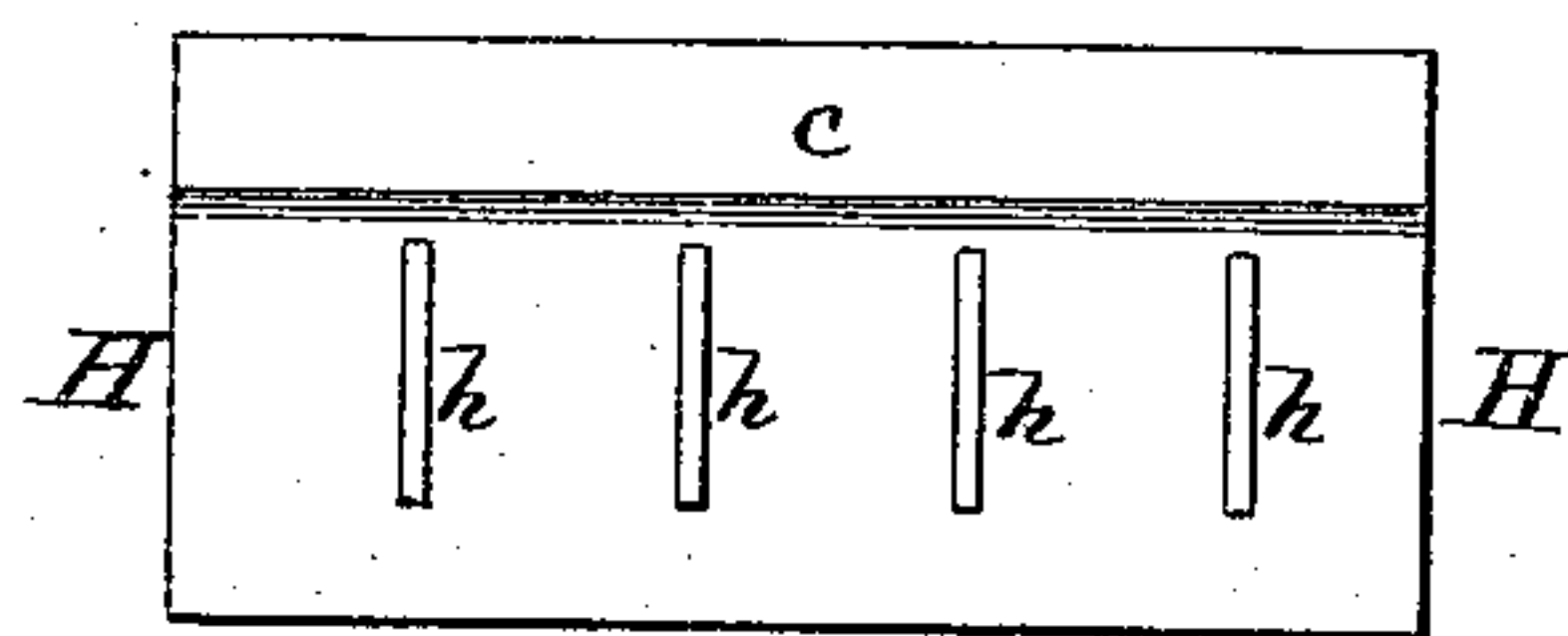


Fig. 7.

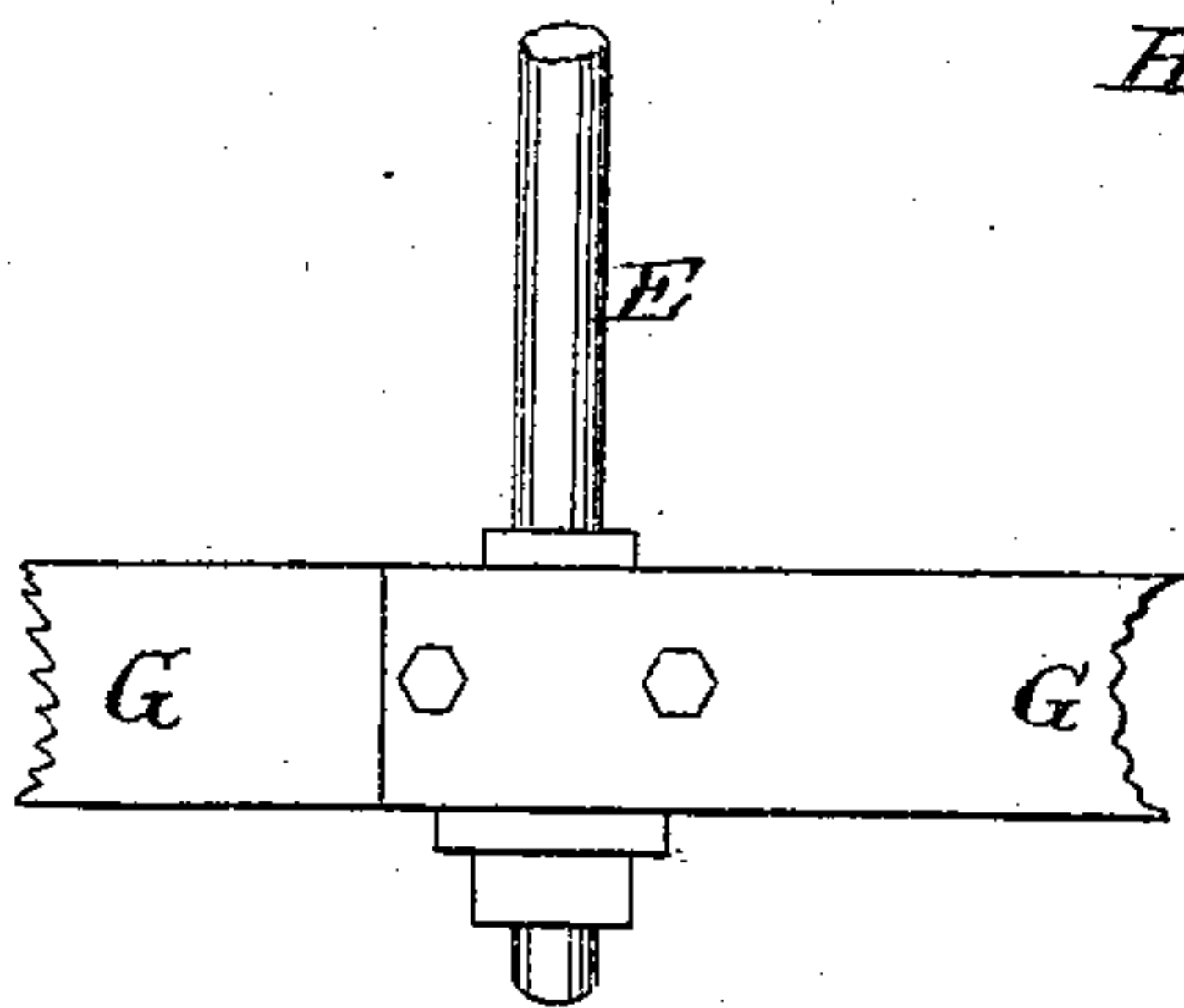


Fig. 8.

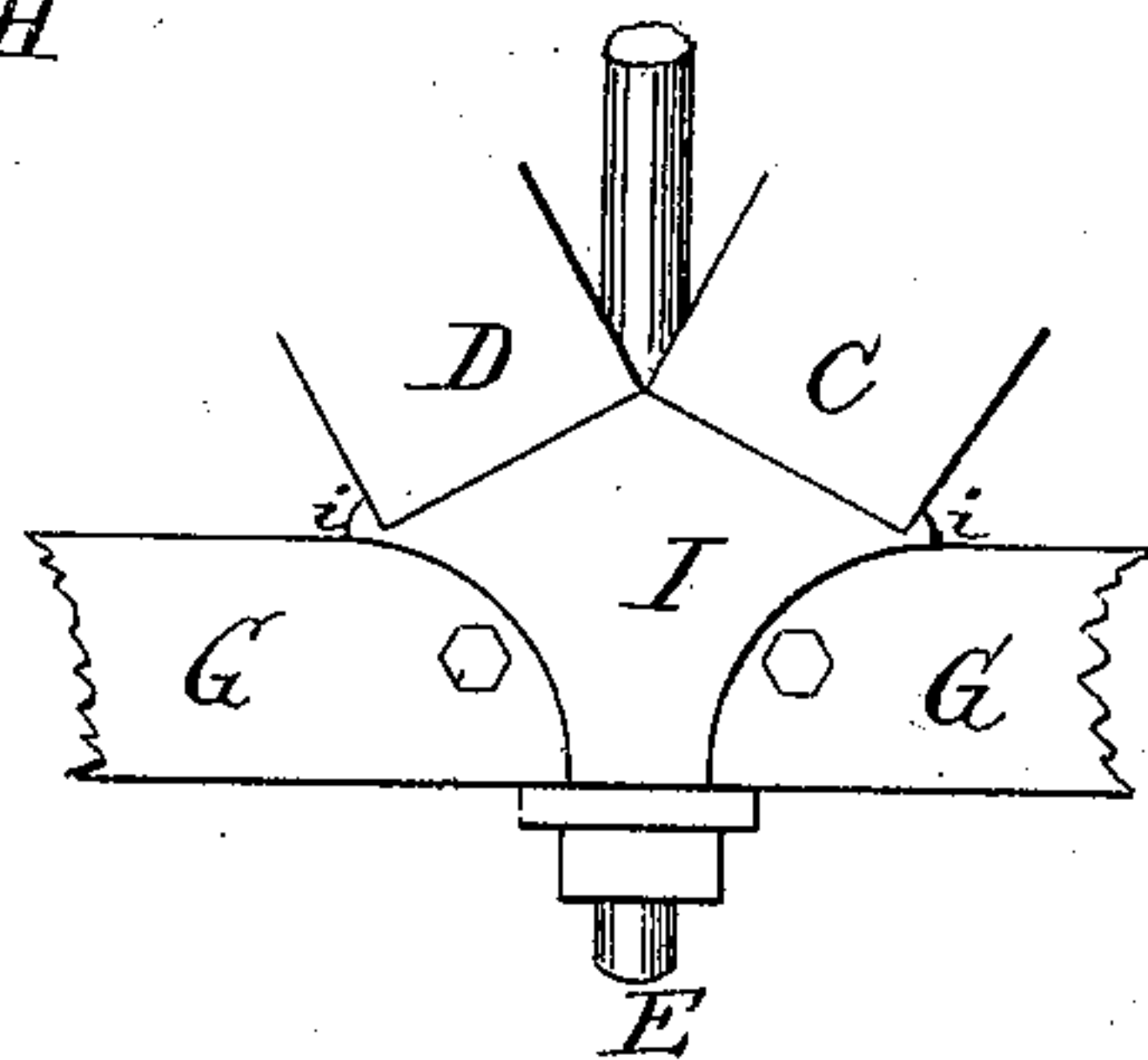


Fig. 9.

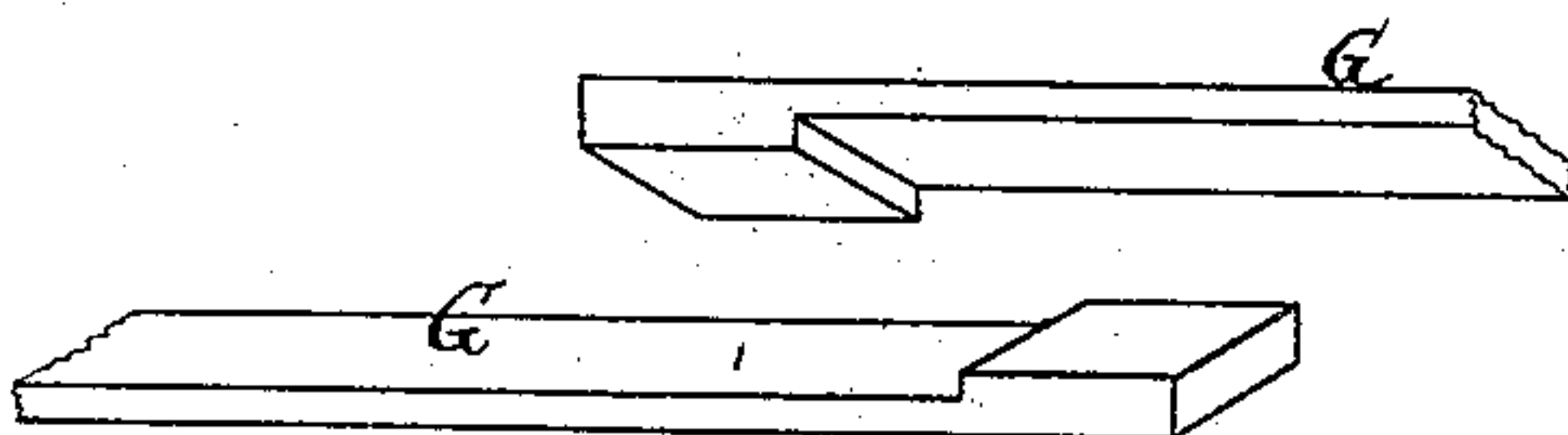
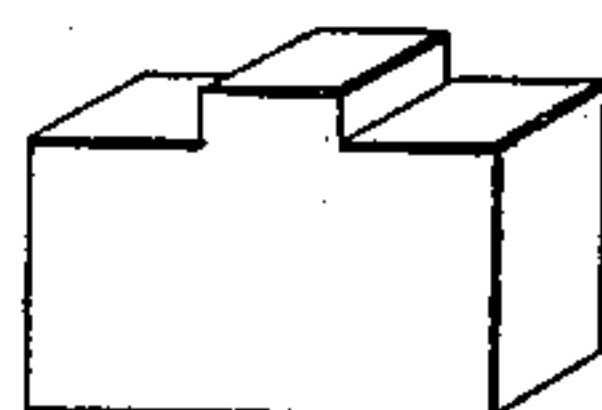


Fig. 10.



Witnesses.

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UNITED STATES PATENT OFFICE.

MILO S. CARTTER AND HOSEA B. CARTTER, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN TRUSS-BRIDGES.

Specification forming part of Letters Patent No. 127,564, dated June 4, 1872.

To all whom it may concern:

Be it known that we, MILO S. and HOSEA B. CARTTER, of St. Louis, in the county of St. Louis and in the State of Missouri, have invented certain new and useful Improvements in Truss-Bridges; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a side elevation of a panel or section of a "Combination Howe Truss-Bridge" constructed with our improvements. Fig. 2 is a vertical cross-section of the same on line *xx* of Fig. 1, with the divided braces removed. Fig. 3 is a plan view of the shoe and a portion of the lower chord, showing the manner of connecting the same. Fig. 4 is a plan view of a section of the lower chord and an angle-block in position. Fig. 5 is a side elevation of the shoe and adjacent parts enlarged. Fig. 6 is an elevation of the inner end of the shoe. Fig. 7 is a side elevation of a joint in the lower chord with the angle-block removed. Fig. 8 is a side elevation of a section of the lower chord, showing the end of an angle-block. Fig. 9 is a perspective view of chord-bars, showing their interlocking heads; and Fig. 10 is a perspective view of a packing-block.

Letters of like name and kind refer to like parts in each of the figures.

Heretofore, in constructing truss-bridges with iron chords at the bottom, the shoe and the plate which rests upon and secures the chord-bars therein have been cast in separate pieces, so that the entire thrust of the main braces came upon said plate, tending to separate it from the shoe. To remove this and other objections is the design of our invention, which consists, principally, in the peculiar construction of the shoe, by means of which the same may be formed of or from one piece of metal, substantially as and for the purpose hereinafter specified. It consists, further, in the means employed for connecting together the chord-bars and shoe, substantially as and for the purpose hereinafter shown.

In the annexed drawing, A represents the

upper chord; B and B', the end posts; C, the main braces; D, the counter-braces; and E, the tension-rods, all of which are constructed in the usual manner, and combined with the lower chord F, the chord-bars G, the shoe H, the angle-block I, and the pin K, which secures the chord-bars and shoe together, as is hereinafter shown. The lower part of the shoe is constructed with a plane surface, as is shown in Fig. 5, while its upper side is provided with horizontal steps *b b'* for the reception of the lower ends of the posts B and B', with an angular step, *c*, corresponding to one of the upper sides of an angle-block, I, for the lower ends of the first pair of braces C, and with suitable vertical openings *e* for the reception of the post tension-rods E. The interior of the shoe is provided with a recess, corresponding in width to the breadth of the end of the chord F, and in depth to the whole depth of the shoe less about the thickness of one of the chord-bars, while a number of slots, *h*, corresponding in size, shape, and position with the chord-bars G, and extending longitudinally outward from said recess, permit the ends of said chord-bars to be passed through said slots, as shown in Figs. 3 and 6, where said ends, provided with suitable openings *g*, are secured in place by means of the pin K, which passes through the same.

As seen in Figs. 1 and 8 the angle-block is constructed with a lip or flange, *i*, on either side, which extends outward and upward at an angle corresponding with the line of the brace, and holds the lower end of the same firmly in position thereon.

As thus constructed a material increase in the strength of parts is secured without increase in their cost, while in case of the shoe, by the arrangement of the different portions, the whole is readily cast in one piece, and, as a result, is far stronger, and can be furnished at a much lower rate, than as heretofore constructed.

Having thus fully set forth the nature and merits of our invention, what we claim as new is—

1. The shoe H, provided with an interior re-

cess, the longitudinal slots *h*, the horizontal steps *b b'*, the angular step *c*, and the openings *e*, substantially as and for the purpose set forth.

2. The shoe *H* provided with the slots *h*, the chord-bars *G* provided with the openings *g*, and the pin *K*, when constructed and combined, substantially as and for the purpose shown.

In testimony that we claim the foregoing we

have hereunto set our hands this 15th day of April, 1872.

MILO S. CARTTER.
HOSEA B. CARTTER.

Witnesses:

GEO. GRAHAM,
JAMES GATES.