

W. IRELAN.  
Truss-Bridge.

No. 205,799.

Patented July 9, 1878.

Fig: 1.

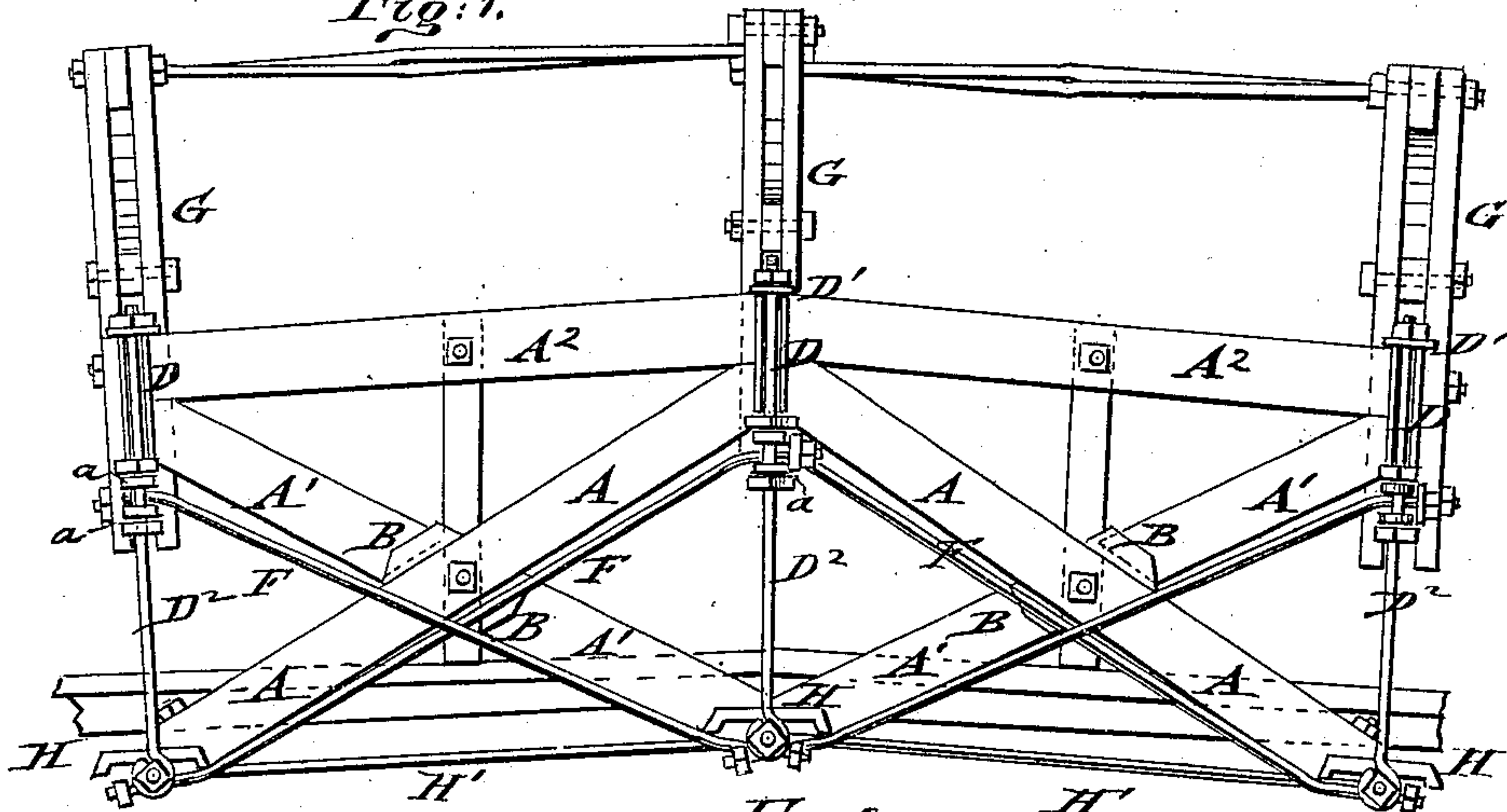


Fig: 2.

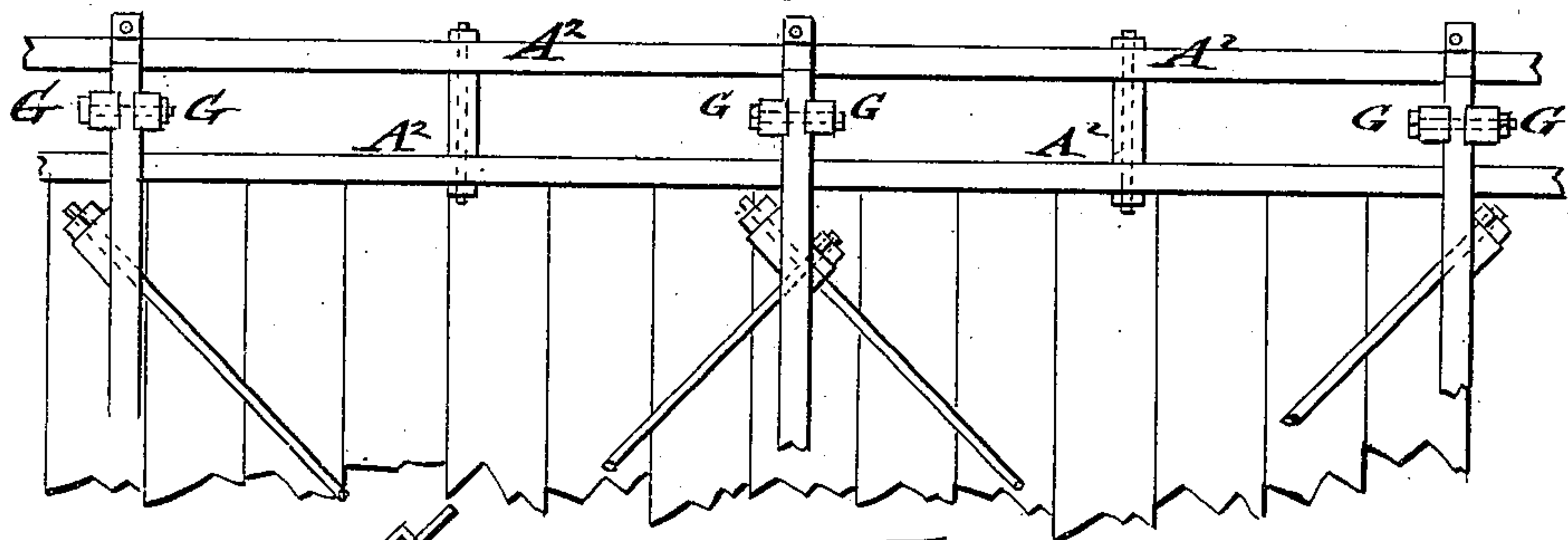


Fig: 3.

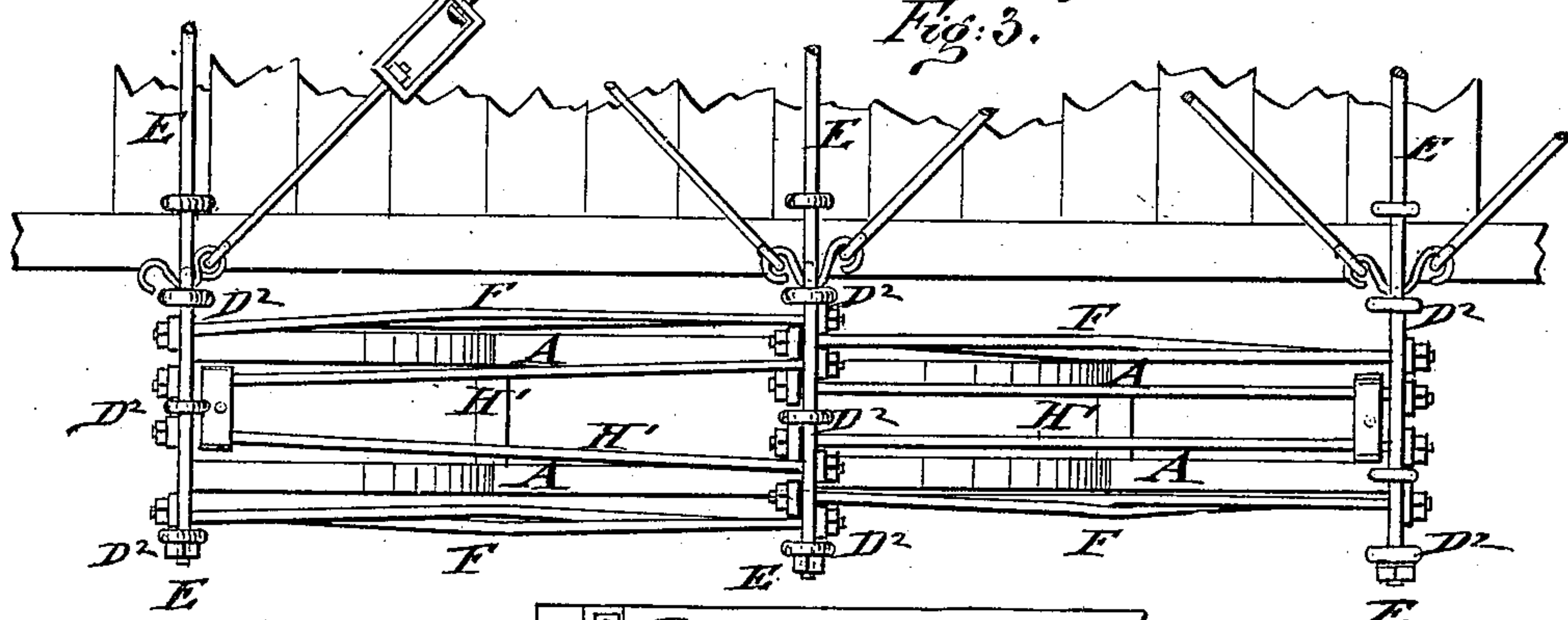


Fig: 4.

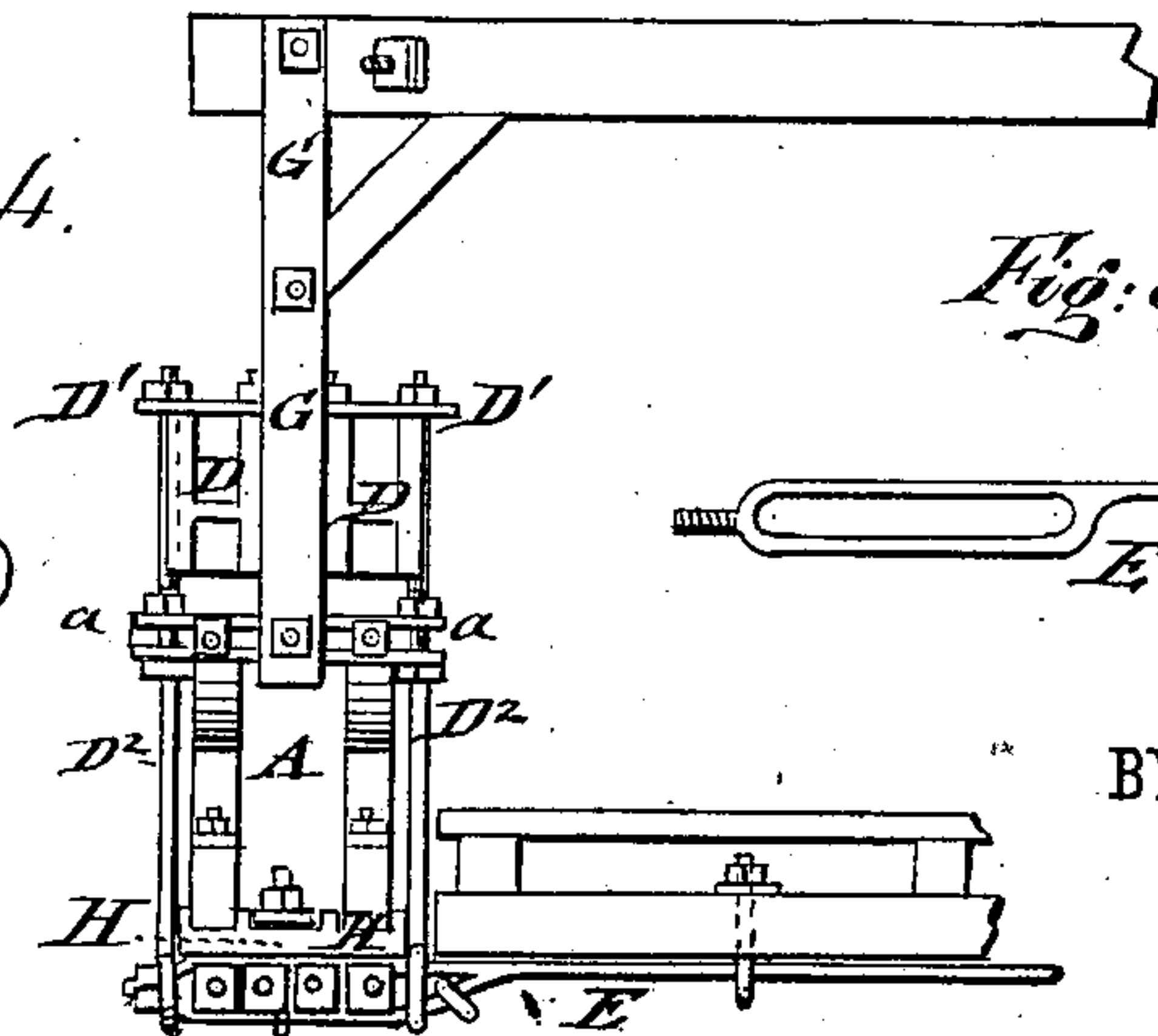
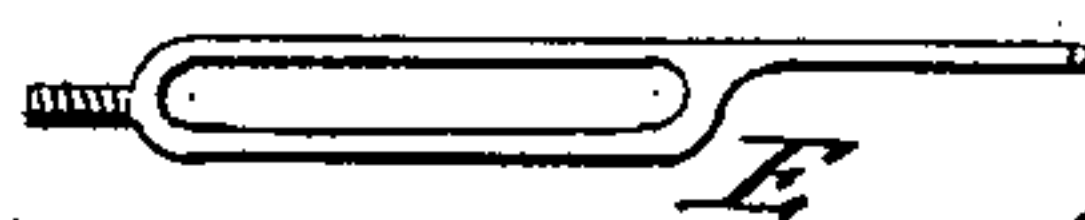


Fig: 5.



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# UNITED STATES PATENT OFFICE.

WILLIAM IRELAN, OF OAK SPRINGS, IOWA.

## IMPROVEMENT IN TRUSS-BRIDGES.

Specification forming part of Letters Patent No. **205,799**, dated July 9, 1878; application filed April 27, 1878.

*To all whom it may concern:*

Be it known that I, WILLIAM IRELAN, of Oak Springs, in the county of Davis and State of Iowa, have invented a new and Improved Truss-Bridge, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation of a portion of my improved truss-bridge. Fig. 2 is a top view of the same; Fig. 3, a bottom view; Fig. 4, an end view of the same; and Fig. 5 is a detail view of the end of one of the joist-bearing rods.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved construction of truss-bridge, that is made of a number of connected sections, the braces of which are so attached to each other as to be readily removed individually and repaired, when required, without the use of a trestle below the bridge. The bridge may be constructed of any number of sections, and forms a strong and reliable structure when properly constructed.

The invention consists of a truss-bridge made of sections, constructed of top and diagonal braces, which are secured at the ends to vertical and horizontal shoes or castings, and bound securely together by vertical, longitudinal, and diagonal stiffening-bolts.

The truss-sections support the vertical roof-posts, and are connected at the bottom by joist-bearing rods with looped ends, on which the floor-timber and flooring are placed.

Referring to the drawing, A A<sup>1</sup> represent the diagonal braces of one section of my improved truss-bridge, of which one brace is extended in one piece through the section, while the intersecting brace is made of two pieces, which rest on cast-iron shoes B, that are secured in suitable manner to the upper and lower sides of the continuous brace A. The upper ends of the diagonal braces A A<sup>1</sup> are connected by a top brace, A<sup>2</sup>, which, as well as the upper ends of the diagonal brace A A<sup>1</sup>, rest against vertical cast-iron shoes D, with longitudinal and transverse ribs for retaining securely the ends of the braces.

The brace-shoes D are securely retained on the ends of the braces by a top cross-plate, D<sup>1</sup>, and by vertical stay-bolts D<sup>2</sup>, that extend from

the top plate D<sup>1</sup> to the lower ends of the diagonal braces, being secured, at the upper ends by screw-nuts and at the lower ends by loops or eyes, to the transverse joist-bearing rods E.

To the intermediate cross-plates *a* of the vertical stay-bolts D<sup>2</sup>, which cross-plates are secured in position by screw-nuts, are applied stiffening diagonal rods F, which are tightly applied to the cross-plates by means of heavy washers and screw-nuts, and at their lower ends strapped to the joist-bearing rods.

The supporting-posts G of the roof of the bridge are generally bolted to intermediate castings between the top shoes of the diagonal and top braces and to the lower cross-plates of the vertical stay-bolts D<sup>2</sup>, the posts supporting by angle-braces the transverse top pieces, which are connected to the adjoining top pieces by horizontal diagonal brace-bolts. The lower ends of the diagonal braces are supported, in similar manner as the upper ends, on horizontal shoes H, with end flanges and center ribs parallel thereto. The lower shoes H are strapped by center eyebolts and nuts to the looped end portions of the joist-bearing rods E, the bolt and screw being shown in Fig. 4, and longitudinally stiffened by horizontal connecting-rods H', that are applied by washers and screw-nuts to the looped ends of the joist-bearing rods, to which also the diagonal rods F are attached in like manner, as shown in Fig. 4. The joist-bearing rods support transverse timbers, to which the timber that supports the flooring of the bridge is attached. The adjoining joist-bearing rods are, like the top pieces, connected by diagonal stiffening-rods, and the outermost threaded ends of the joist-bearers provided with screw-nuts, that retain the vertical stay-rods D<sup>2</sup>, while the intermediate diagonal and horizontal stiffening-rods are rigidly held by the looped ends of the joist-bearing rods.

In this manner a bridge that is partly constructed of wood and partly of iron is obtained in which, by loosening the connecting bolts and screws of the shoes and braces, any brace or bolt that requires repair may be removed without necessitating the support of the bridge by trestle-work, the remaining parts being sufficiently strong and connected to keep the entire structure intact.

As the brace-work of the sections of the

bridge is double throughout, forming two separate parts in each section, that are about four inches (more or less) from each other, and as the top shoes of each section are connected thereto by the vertical bolts, each section or panel may be removed for repairs independently of the other. . The number of connecting-rods of the joints may be increased when it is desired to increase the strength and stiffness of the bridge.

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

1. The combination, in a truss-bridge, of the diagonal braces A A<sup>1</sup>, the connecting top brace A<sup>2</sup>, the vertical and horizontal shoes D H, the horizontal top cross-plates D<sup>1</sup>, the vertical stay-bolts D<sup>2</sup>, and the diagonal stiffening-rods F, as and for the purpose set forth.

2. The combination of the diagonal braces, of which one brace is made of two sections, supported on center shoes of the intersecting brace, with vertical and horizontal end shoes, and with vertical, diagonal, and horizontal stiffening-rods, connected to the loop-shaped ends of transverse joist-bearing rods, substantially as specified.

3. The combination of the diagonal braces and connecting top braces, resting on vertical and horizontal shoes, strapped together by stay-bolts, with transverse cross-plates and with the vertical roof-sustaining posts, substantially as specified.

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Witnesses:

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