

A. GREIG.
Permanent-Way for Railways.

No. 226,308.

Patented April 6, 1880.

Fig. 1.

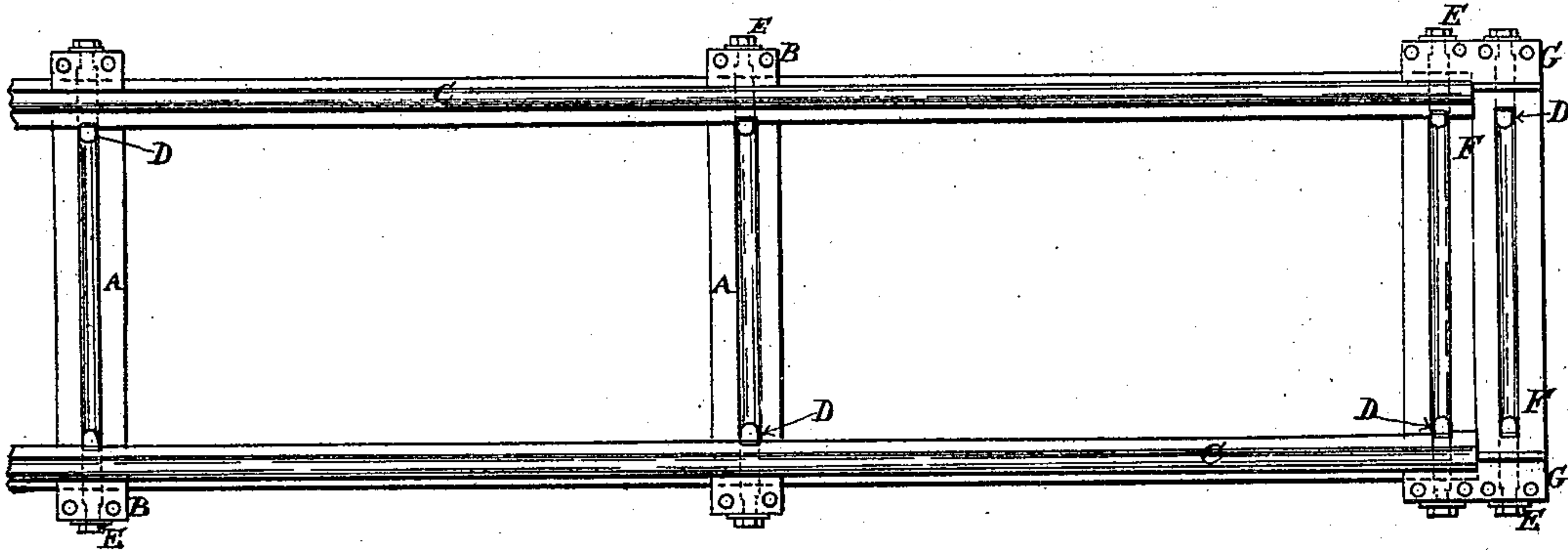


Fig. 8..

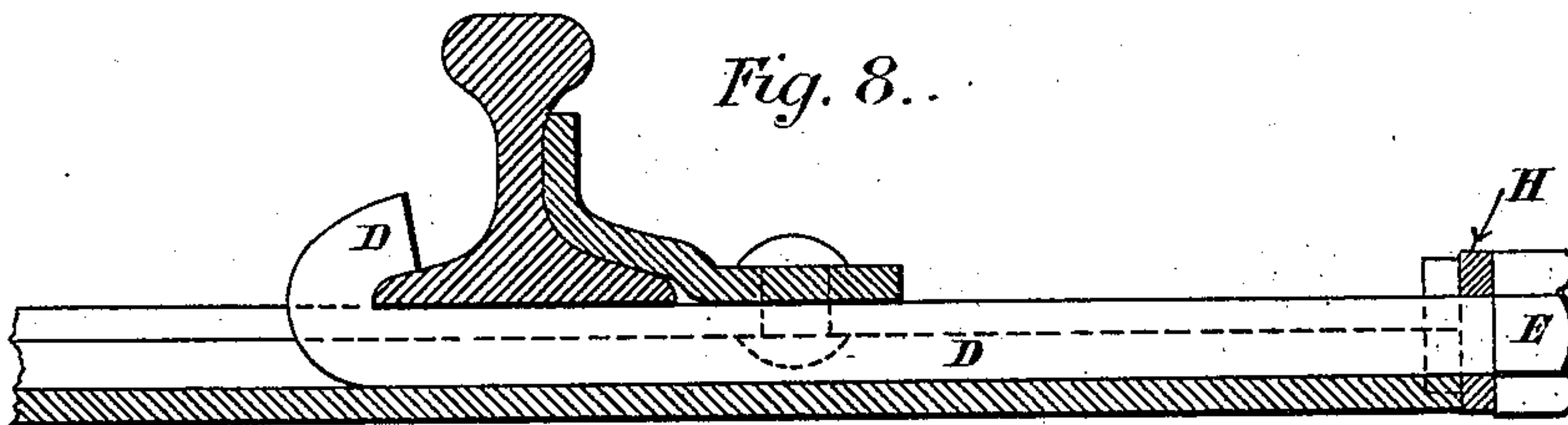
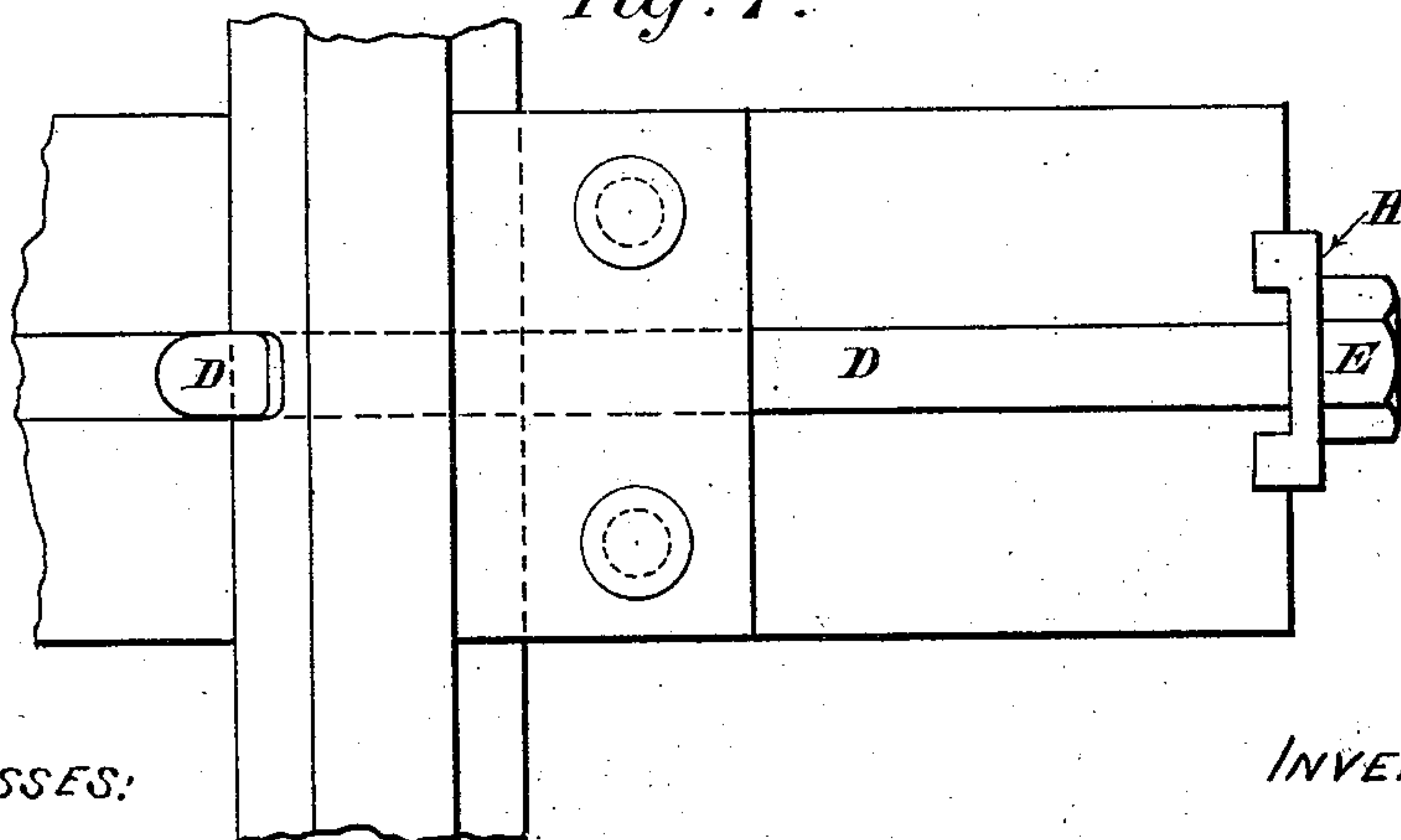


Fig. 7.



WITNESSES:

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INVENTOR.

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Galdwin, Hopkins & Hayter.

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Fig: 3.

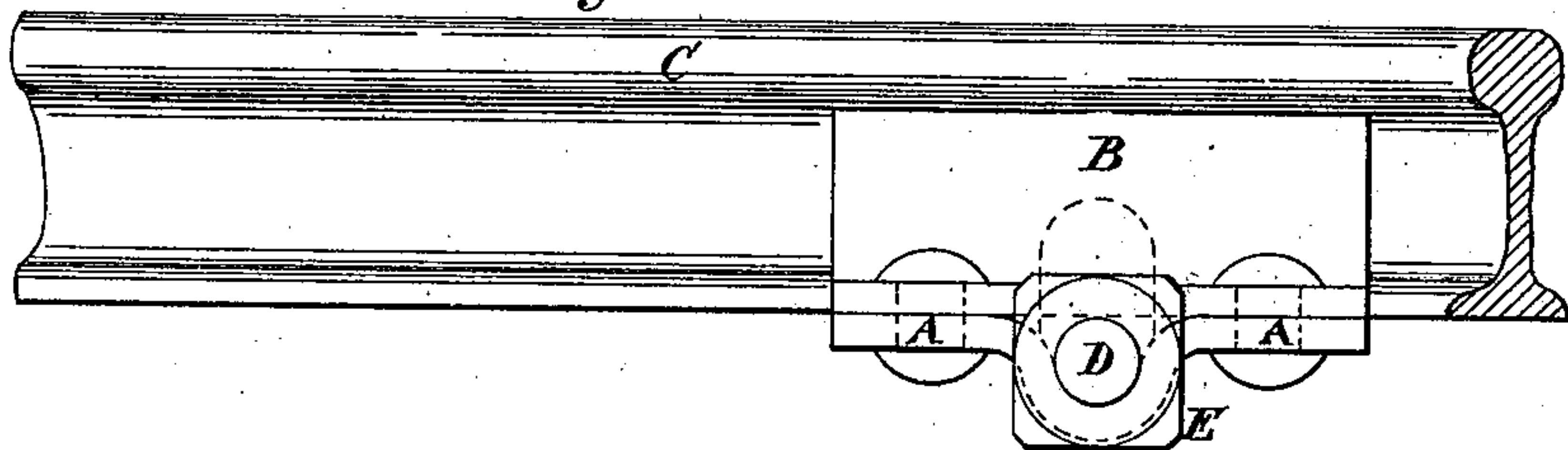


Fig: 2.

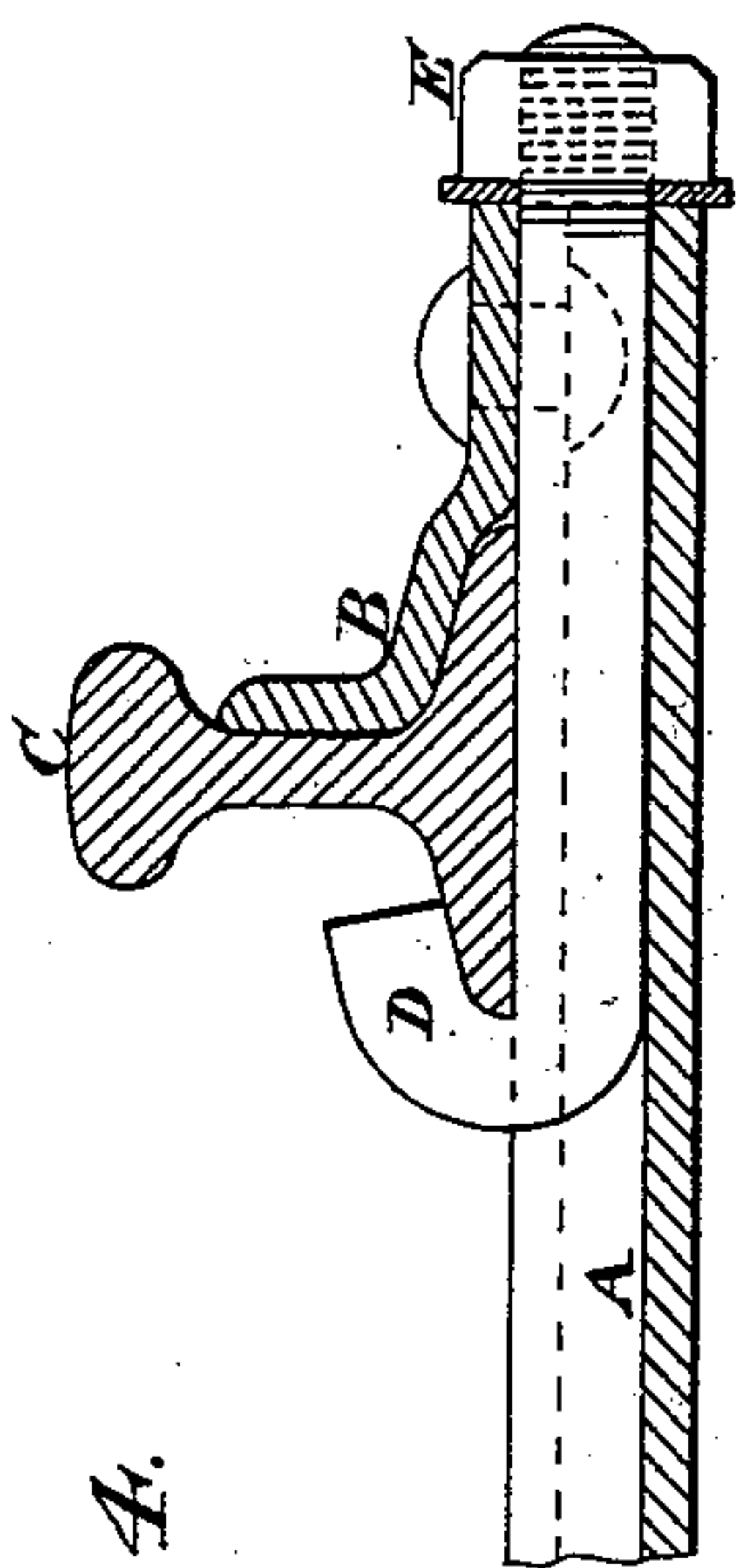
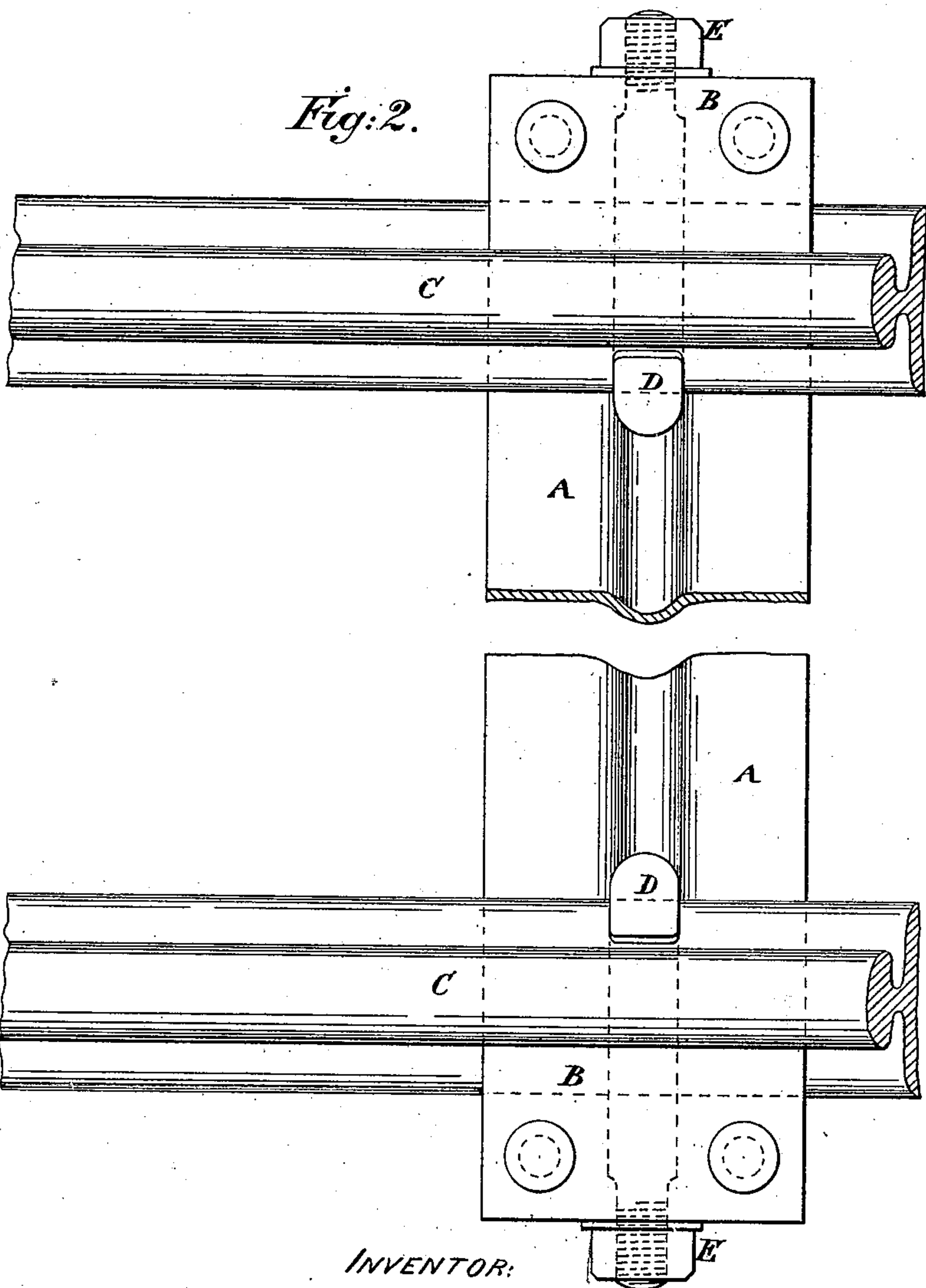
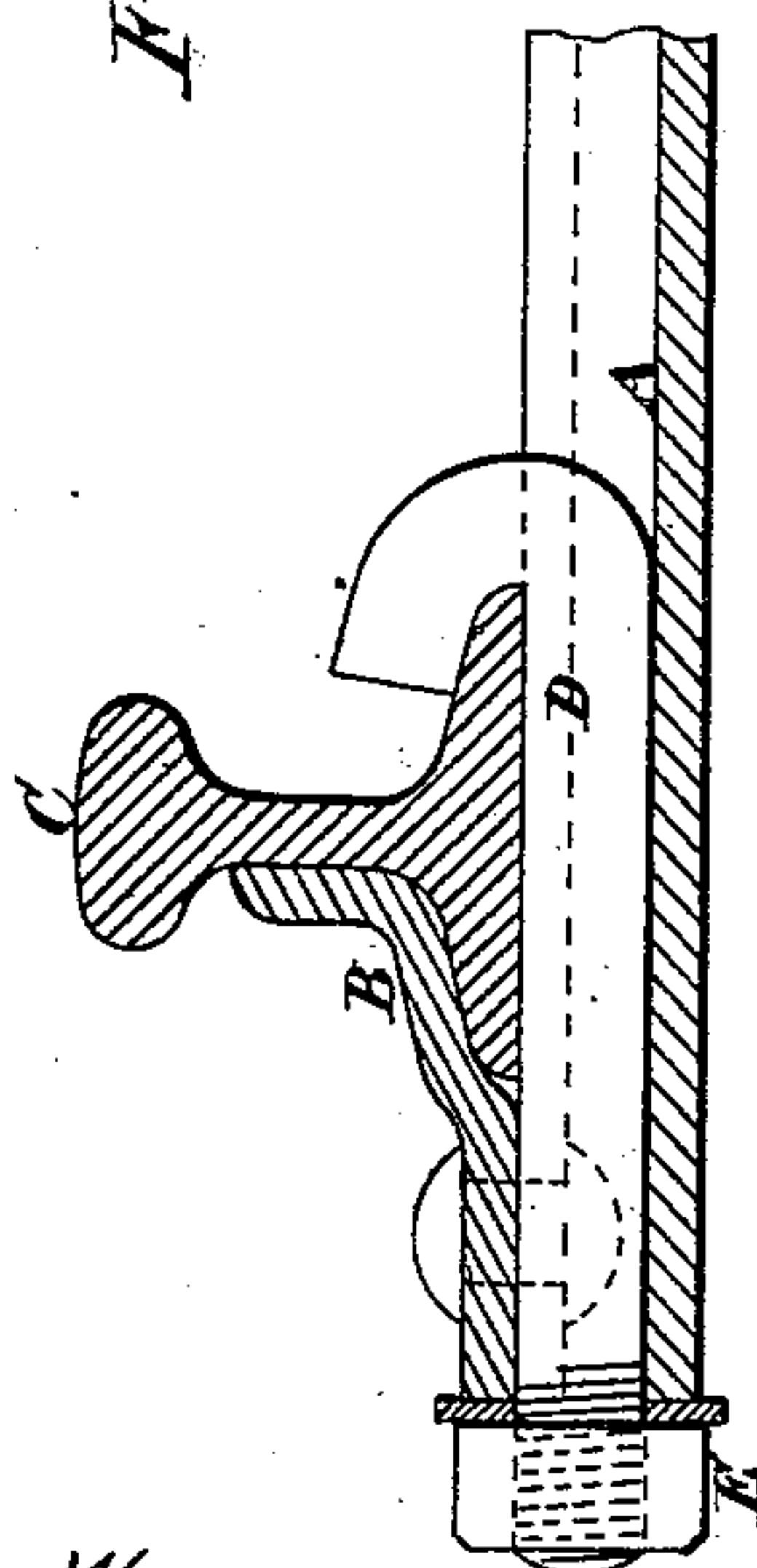


Fig: 4.



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Fig: 6.

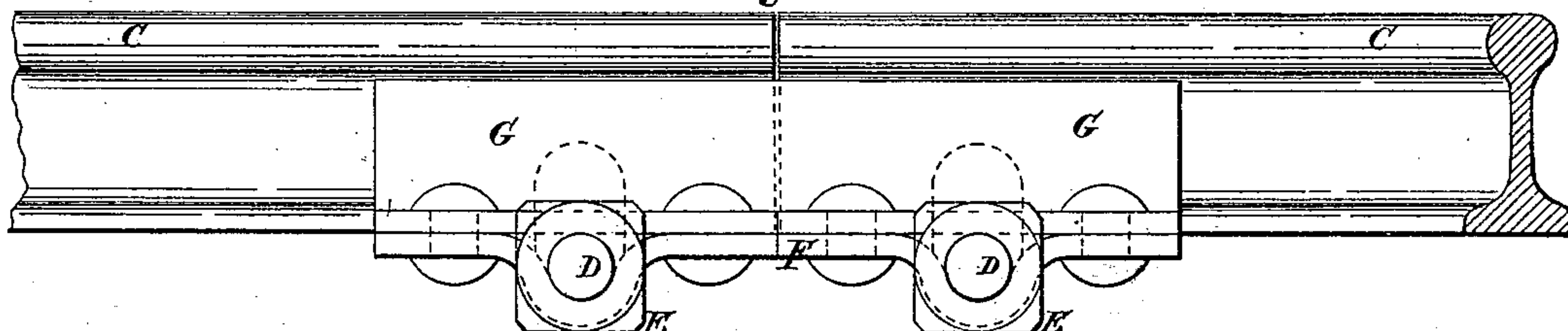
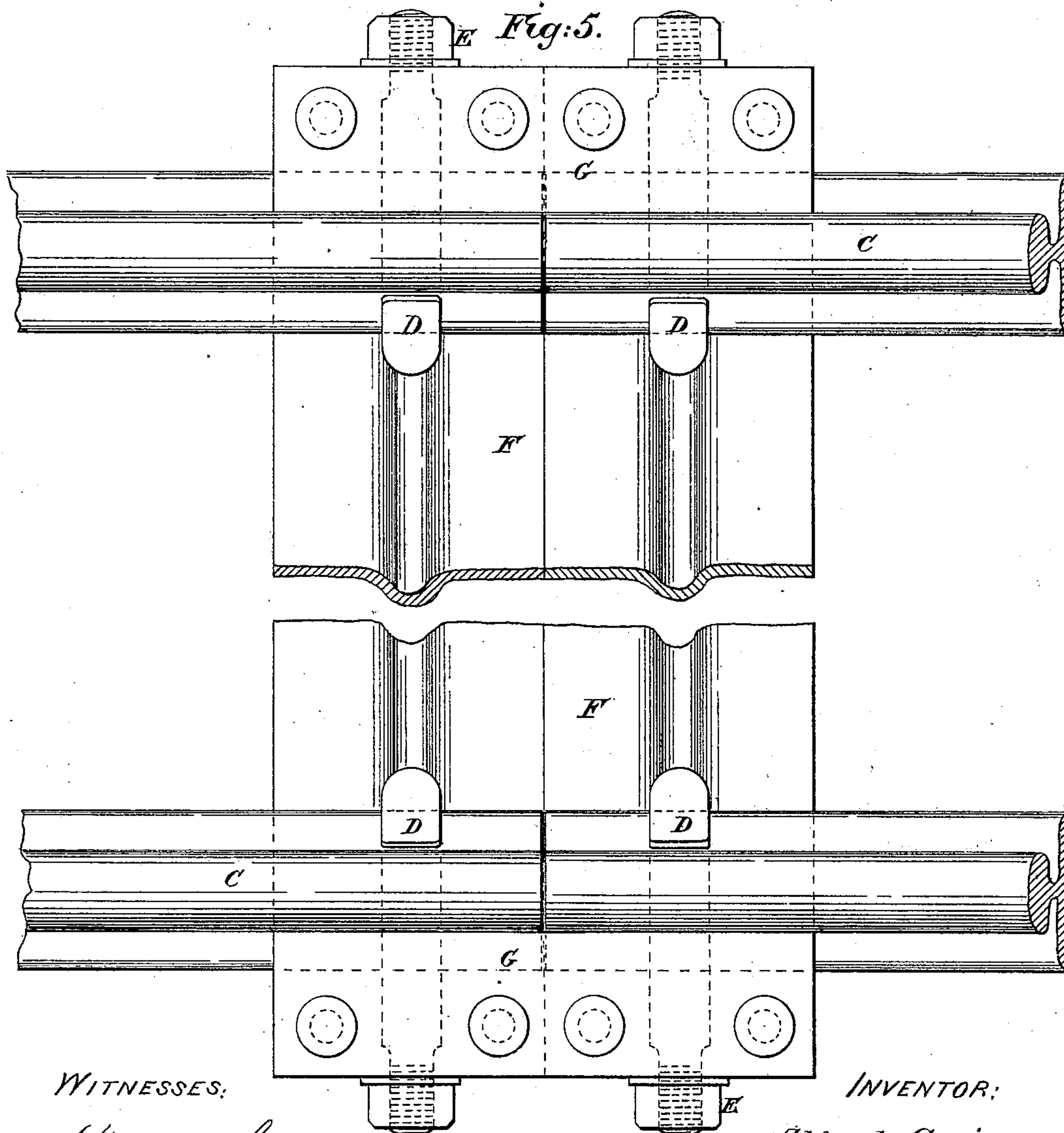


Fig: 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ALFRED GREIG, OF LEEDS, ENGLAND.

PERMANENT WAY FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 226,308, dated April 6, 1880.

Application filed October 23, 1879. Patented in England March 25, 1879.

To all whom it may concern :

Be it known that I, ALFRED GREIG, of the Steam Plough Works, Leeds, in the county of York, England, engineer, have invented new and useful Improvements in the Permanent Way or Roadway of Railways, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

10 My invention consists in connecting the two rails of a portable or fixed line of railway to sleepers of corrugated iron or steel in the following manner: Each sleeper is formed with a groove or corrugation passing along it from
15 one end to the other. Two chairs, which are made to fit the outer side of the rails, are riveted or otherwise securely fastened onto the flat upper surface of the sleepers or cross-pieces at the correct distance apart for the
20 gage required. A bolt with a hooked end is passed under each chair through the corrugation of the sleeper and the rail is laid between the chair and the hooked end of the bolt. When a nut at the end of the bolt is
25 tightened up it bears against the end of the sleeper and the chair and draws the hook against the rail, so causing the rail to be held firmly between the hook and the chair.

To fasten together the lengths of a railway formed in this manner, instead of using
30 ordinary fish-plates, I use, by preference, at the abutting ends of the two lengths of the railway chairs twice as long as the chairs on the intermediate sleepers, and secure these
35 chairs to a sleeper of twice the width of the intermediate ones, each sleeper having two longitudinal corrugations in it instead of one. The ends of the rails of the two lengths abut
40 against one another and fit at their side one against one half of the length of each long chair and the other against the other half, and each is secured by a hooked bolt passing under it and through one of the two corrugations in the broad sleeper.

45 In place of using a broad sleeper at the junctions of two lengths of the railway, two sleepers similar to the intermediate ones might be used, placed close together and secured to one another by the long chairs. In place also
50 of forming the railway with the chairs to come

on the outside of the rails and the hooks on the inside, the chairs might be on the inside of each rail and the rails held to them by hooked pieces drawn inward by means of nuts screwing onto a long bolt which passes along
55 the corrugation in the sleeper from one end of the sleeper to the other.

Figure 1 of the drawings hereunto annexed shows a plan view of a length of the permanent way of a railway constructed as above
60 described. Fig. 2 shows a plan view, Fig. 3, a side view, and Fig. 4 a cross-section, on a larger scale, of the rails and one of the intermediate sleepers. Fig. 5 is a plan view, and Fig. 6 a side view, of the rails and one of the
65 joint-sleepers.

A are the intermediate sleepers, each formed with a longitudinal corrugation, as shown. B are the chairs or jaws riveted thereto. C C are the rails; D, the hooked bolts, the stems
70 of which lie in the grooves or corrugations of the sleepers and pass under the rails and chair-jaws, and E are the nuts screwing onto the stems of these bolts, and which, when
75 tightened up, bear against the end of the sleeper and the end of the chair, as shown clearly at Fig. 3.

F is the sleeper, of greater width, used at the junctions of two lengths of the railway. It may either be in one piece with two longitudinal
80 corrugations, as shown, or it may be two of the intermediate sleepers placed side by side.

G are the long chair-jaws, which extend across the sleeper F and are riveted to it, as
85 shown. If the sleeper F is formed of two of the intermediate sleepers placed side by side, the chair-jaws G serve to connect them together. The ends of the rails of one length of the railway extend half-way across the sleeper
90 F, and are held to it by hooked bolts D lying in one of the longitudinal grooves of the sleeper, as shown at Fig. 1, just in the same way as the rails are held to the intermediate sleepers. The ends of the rails of the next length of the
95 railway are to extend across the other half of the sleeper, and be similarly held to it by hooked bolts lying in the other of the longitudinal grooves of the sleeper.

For portable railways it is not necessary 100

that the joint-sleepers should have two grooves formed in them, as the ends of the rails will, for portable lines, be held sufficiently firm by the chair-jaws of these sleepers without bolts being used. It is not necessary that the base of the chair-jaws B should extend to the ends of the sleepers.

The sleepers might be of greater length than those shown in the drawings above described, so that the ends of the sleepers project beyond the base of the chairs, as shown at Figs. 7 and 8, which show a plan view and cross-section of a rail and one end of one of the intermediate sleepers formed in this manner. In this case the nuts E, which screw onto the stems of the bolts D, may be made to bear against pieces H H, which are interposed between them and the ends of the sleepers, and which are formed in the manner shown.

As before stated, the chair-jaws might be on the inside of the rails in place of on the outside, and the rails be held to them by hooked pieces drawn inward by means of nuts screwing onto a long bolt which passes along a corrugation in the sleeper. I prefer, however, to employ the arrangement shown in the drawings.

Other sections of rails than the section of rail shown in the drawings may be secured to sleepers by the means hereinbefore described.

I claim—

1. The combination, substantially as hereinbefore set forth, of the sleeper, corrugated or constructed with a longitudinal groove or grooves, and the bolts resting and adjustable in said groove or grooves beneath the rail-bearing surface, for the purpose described.

2. The combination of the grooved or corrugated sleeper, the chair-jaws for acting respectively on one side only of a rail, and the hook-bolts for engaging the rails on their sides opposite those engaged by the chair-jaws, and each resting in its groove or corrugation in the sleeper, substantially as hereinbefore set forth.

3. The railway constructed substantially as hereinbefore set forth, consisting of the rails, the intermediate grooved or corrugated sleepers A, the grooved or corrugated sleepers F at the junction of the rails, the chair-jaws B and G, engaging one side only of the respective rails, and the hook-bolts D, resting in the grooves of the sleepers and engaging the other sides of the rails.

ALFRED GREIG.

Witnesses:

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H. TEALE,
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