

No. 772,013.

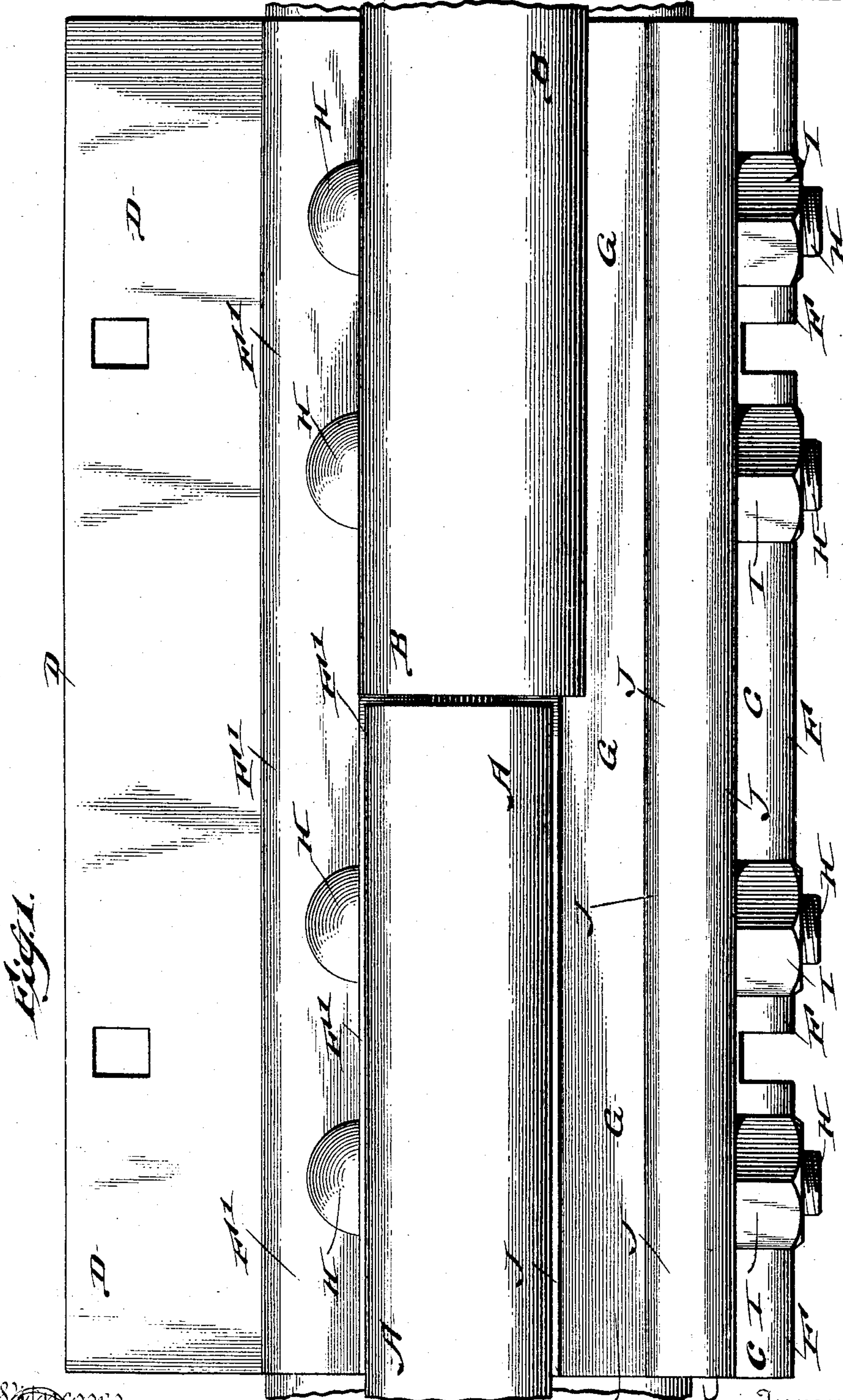
PATENTED OCT. 11, 1904.

G. A. WEBER.  
STEP JOINT.

APPLICATION FILED JUNE 8, 1904.

NO MODEL.

5 SHEETS—SHEET 1.



Witnesses  
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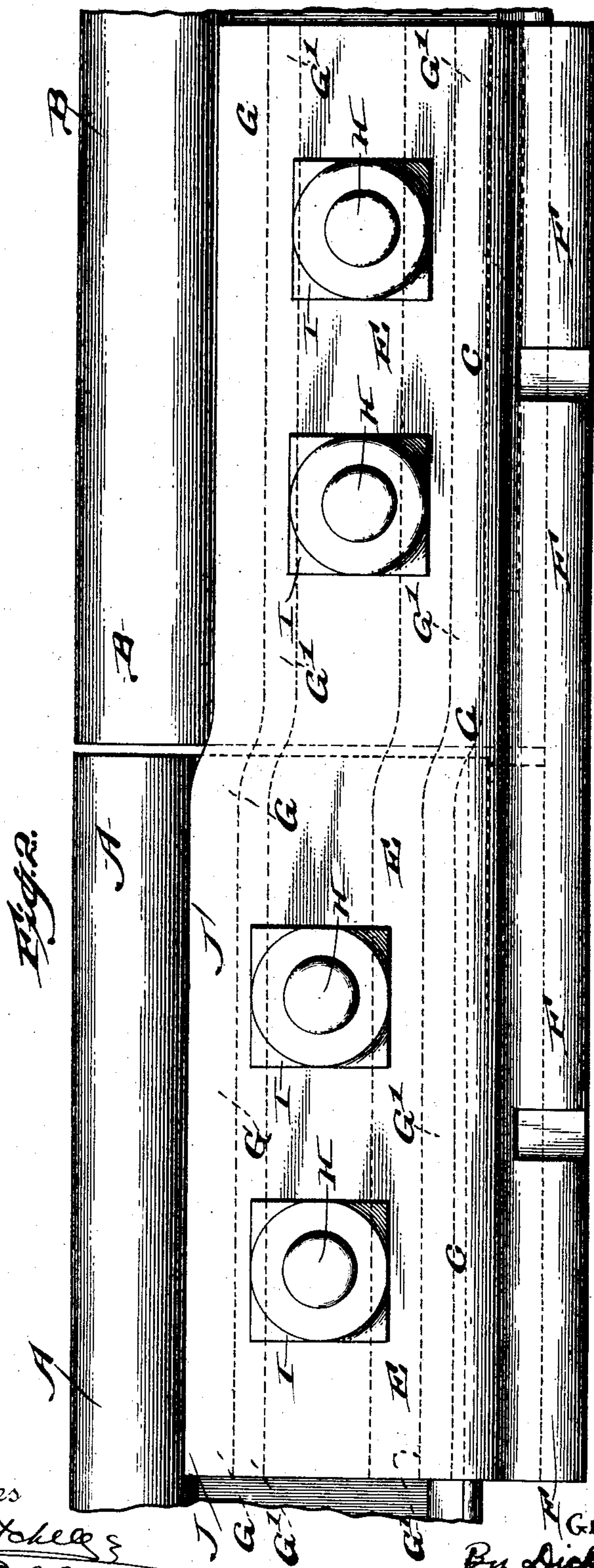
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5 SHEETS—SHEET 2.



Witnesses  
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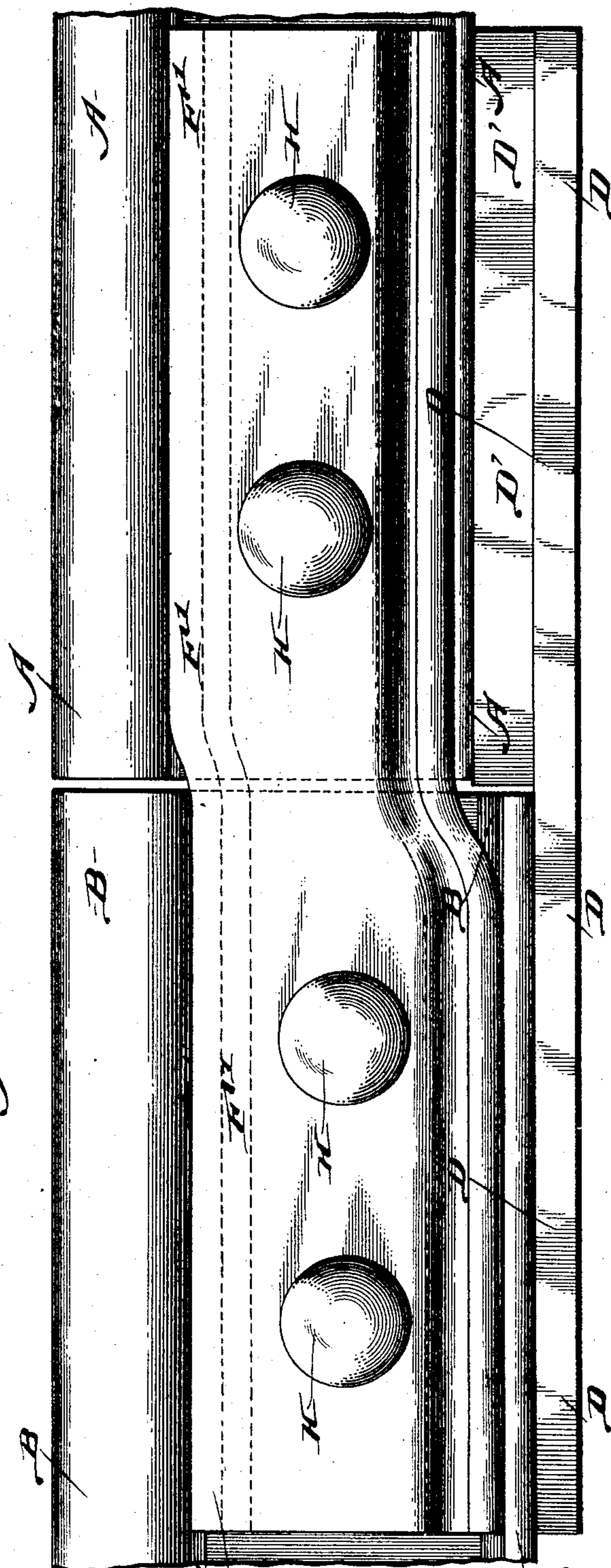
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5 SHEETS—SHEET 3.



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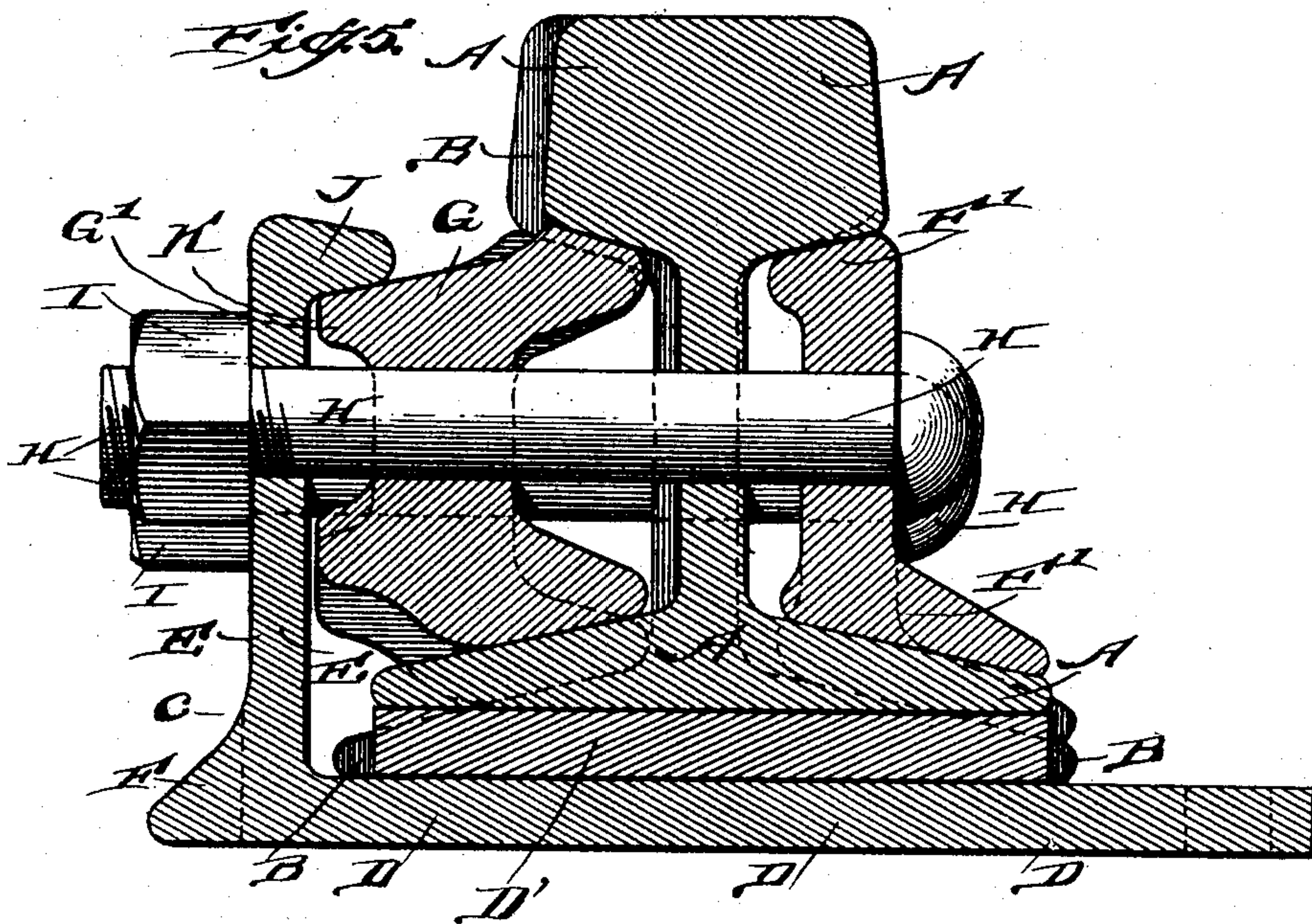
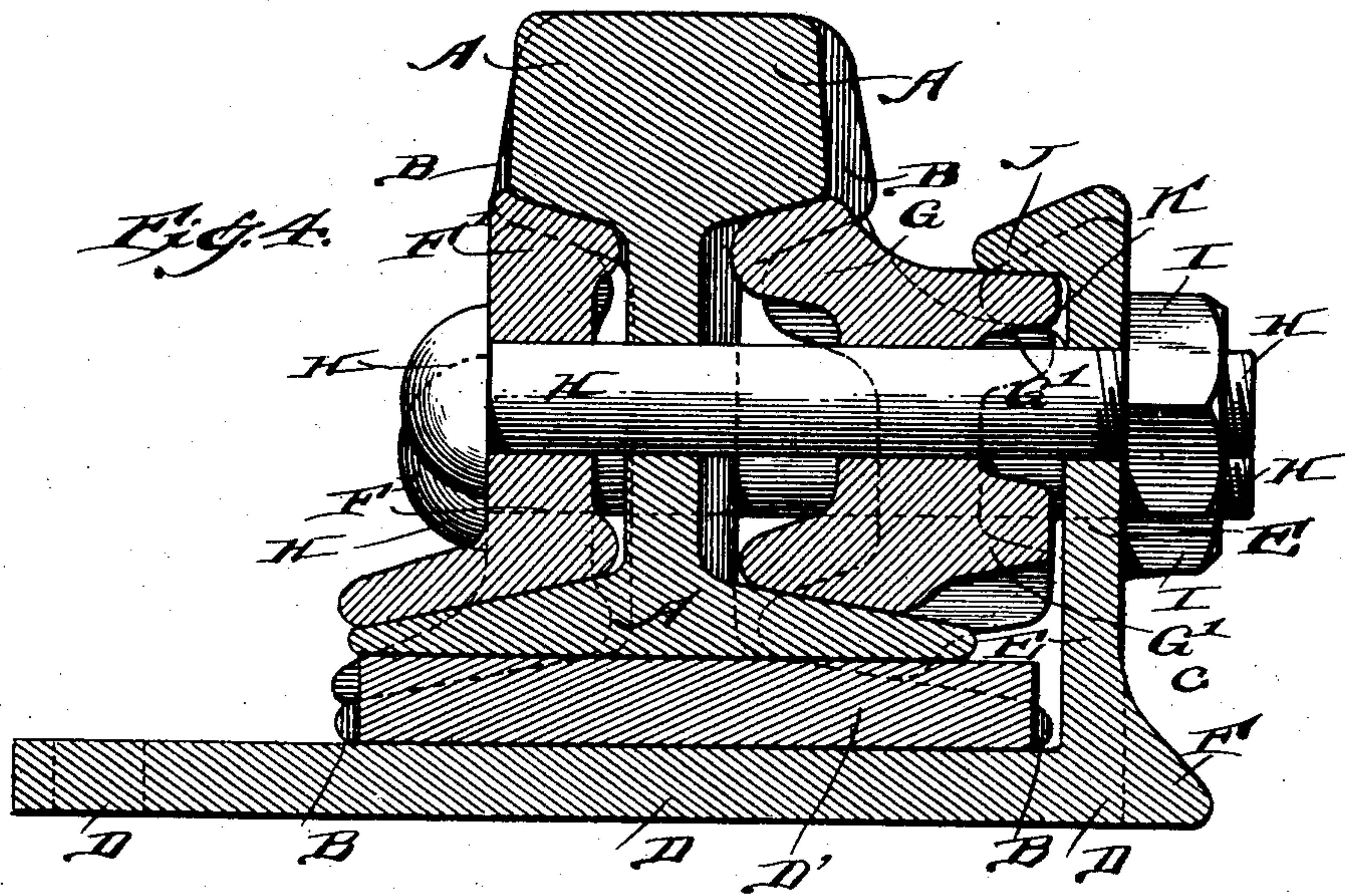
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NO MODEL.

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5 SHEETS—SHEET 4.



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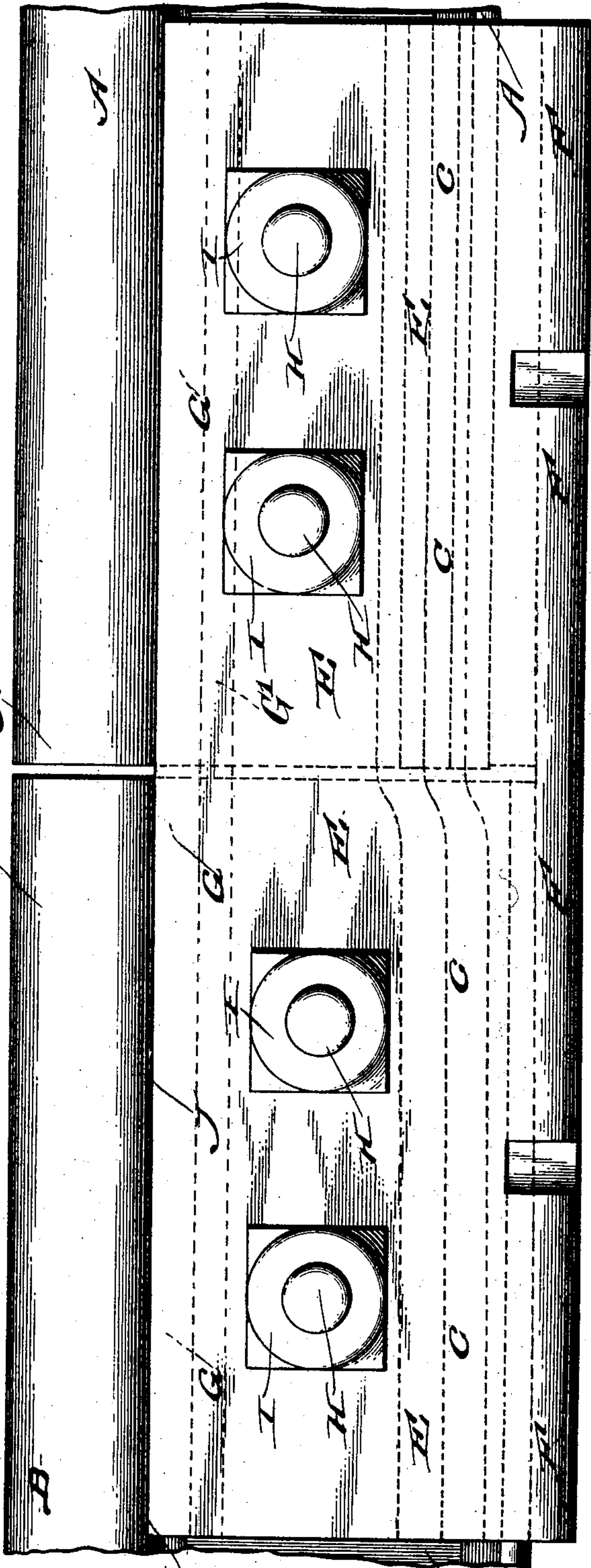
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NO MODEL.

5 SHEETS—SHEET 5.

*Fig. 6.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

GEORGE A. WEBER, OF NEW YORK, N. Y., ASSIGNOR TO WEBER RAILWAY JOINT MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF WEST VIRGINIA.

## STEP-JOINT.

SPECIFICATION forming part of Letters Patent No. 772,013, dated October 11, 1904.

Application filed June 8, 1904. Serial No. 211,603. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE A. WEBER, a citizen of the United States, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Step-Joints, of which the following is a specification accompanied by drawings.

This invention relates to rail-joints, but more particularly to step-joints for connecting the ends of rails of different weight and height.

One of the objects of the invention is to hold the rails in position under the passage of the train and prevent the ends of the rails from moving upward when the wheels are passing from one rail to another.

Another object of the invention is to secure a downward hold upon the base-flanges of the rails, but at the same time take a firm upward pressure under the heads.

Further objects of the invention will hereinafter appear; and to these ends the invention consists of a rail-joint for carrying out the above objects embodying the features of construction, combinations of elements, and arrangement of parts having the general mode of operation substantially as hereinafter fully described and claimed in this specification and shown in the accompanying drawings, in which—

Figure 1 is a plan view of a rail-joint embodying the invention. Fig. 2 is a side elevation of the same looking at the upright of the angle-chair. Fig. 3 is a side elevation looking at the inside of the joint. Fig. 4 is a transverse sectional view of the joint. Fig. 5 is a transverse sectional view of a slightly-modified form of joint. Fig. 6 is a side elevation of the joint shown in Fig. 5 looking at the upright of the angle-chair.

Referring to the drawings, A and B represent the meeting ends of rails of different weight and height supported upon a rail-chair C, Fig. 1, having a base D, an upright E, and a projection or rib F for strengthening purposes and for spiking the chair to the ties. Suitable side bars are provided for maintaining the rails in alinement, these bars being

suitably offset both vertically and horizontally to accommodate the differences in the height and thickness of the rails. As shown, there is an angle-bar F' on the inside of the joint and a bar G, substantially in the form of a channel, between the webs of the rails and the upright E of the chair. The outer flanges G' of the bar G are preferably so constructed that their outer faces lie in substantially the same plane, so that a continuous bearing may be afforded, if desired, between them and the upright of the chair when the joint is tightened up. Suitable bolts H, provided with the nuts I, secure the parts of the joint together. Suitable means is provided for compensating for the height of the shorter rail, as shown, a portion of the base of the rail-chair underneath the rail of lesser height being provided with a step-block D'. Any other suitable means may be provided in place of a step-block to accomplish the same end.

One of the features of this invention resides in the fact that a downward pressure is obtained upon the bases of the rails when the parts of the joint are tightened up, while at the same time a firm upward pressure is obtained under the heads of the rails. The downward pressure upon the bases of the rails tends to prevent the rail ends from rising under the action of the wheels, while the upward pressure under the heads of the rails prevents the ends of the rails from sinking. These ends are obtained by the construction of this improved joint in accordance with the invention. As shown, an inwardly-turned hook or portion J is provided at the upper end of the upright E of the chair, which projection is adapted to bear upon a portion of the side bar G, so that when the joint is tightened the projection J not only forces the bar G toward the rails, but at the same time presses it downwardly upon the bases of the rails. It will be seen that the action of the rail-chair constructed as described is also to lock the side bar and the bases of the rails together, and as the side bar is forced toward the rail-webs a strong upward pressure is obtained underneath the heads of the rails.



As shown, clearance-spaces K are provided between the outer faces of the side bar G and the upright E of the chair to afford means for taking up the parts in tightening the joint. 5 When the bolts are tightened up, the side bars G and F' are also tightened in the fishing-spaces in the rails, as in an ordinary joint, so that the fit of the side bars in the fishing-spaces is insured. Furthermore, with a joint 10 constructed in accordance with this invention a secure fit is obtained between the parts of the joint and the three bearing sides of the rails—that is, underneath the heads, on top of the base-flanges, and underneath the bases of the 15 rails. In the construction shown in Fig. 4 the top of the upright E of the rail-chair is offset vertically to accommodate the chair to the shape of the bar G.

In Figs. 5 and 6 the construction of the 20 joint is like that illustrated in the previous figures, with the exception that the top of the upright E of the rail-chair is not offset vertically, and the bar G is provided with a bearing-surface lying in one plane. The inwardly-projecting flanges of the bar G are 25 suitably offset, however, to accommodate the difference in the height and thickness of the rails.

Obviously some features of this invention 30 may be used without others, and the invention may be embodied in widely-varying forms.

Therefore, without limiting the invention to the constructions shown and described nor enumerating equivalents, I claim, and desire to 35 secure by Letters Patent, the following:

1. A step-joint, comprising rails of different height and weight, and side bars constructed to accommodate said rails, and a rail-chair constructed to produce a downward pressure upon 40 the base-flanges of the rails when the joint is tightened, and at the same time cause an upward pressure under the heads of the rails.

2. A step-joint, comprising rails of different height and weight, and side bars constructed 45 to accommodate said rails, and a rail-chair constructed to secure a fit between the parts of the joint and the three bearing sides of the

rails, comprising the under portions of the heads, the tops of the base-flanges, and the under portions of said flanges, whereby one 50 of the side bars is locked to the base-flanges and produces a pressure thereon, while at the same time an upward pressure is produced beneath the heads of the rails.

3. A step-joint, comprising rails of different 55 height and weight, and side bars constructed to accommodate said rails, and a rail-chair comprising a base and an upright, said chair being constructed to bear upon the upper portion of one of the side bars and produce a downward 60 pressure thereon when the joint is tightened.

4. A step-joint, comprising rails of different height and weight, and side bars constructed to accommodate said rails, and a rail-chair provided with means for securing a downward 65 pressure upon one of said bars when the joint is tightened.

5. A step-joint, comprising rails of different height and weight, and side bars constructed to accommodate said rails, and a rail-chair provided with means for securing a downward 70 and inward pressure upon one of said side bars when the joint is tightened.

6. A step-joint, comprising rails of different height and weight, and side bars constructed 75 to accommodate said rails, and a rail-chair having a base with a step upon which the rails rest, an upright, and an inward extension from said upright, whereby the rails and one of the side bars are clamped between the base and the ex- 80 tension of the upright of the chair.

7. A step-joint, comprising rails of different height and weight, and side bars constructed to accommodate said rails, and a rail-chair hav- 85 ing an inwardly-extending head on the upright, and a strengthening-rib.

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

GEORGE A. WEBER.

Witnesses:

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MARION HALL.