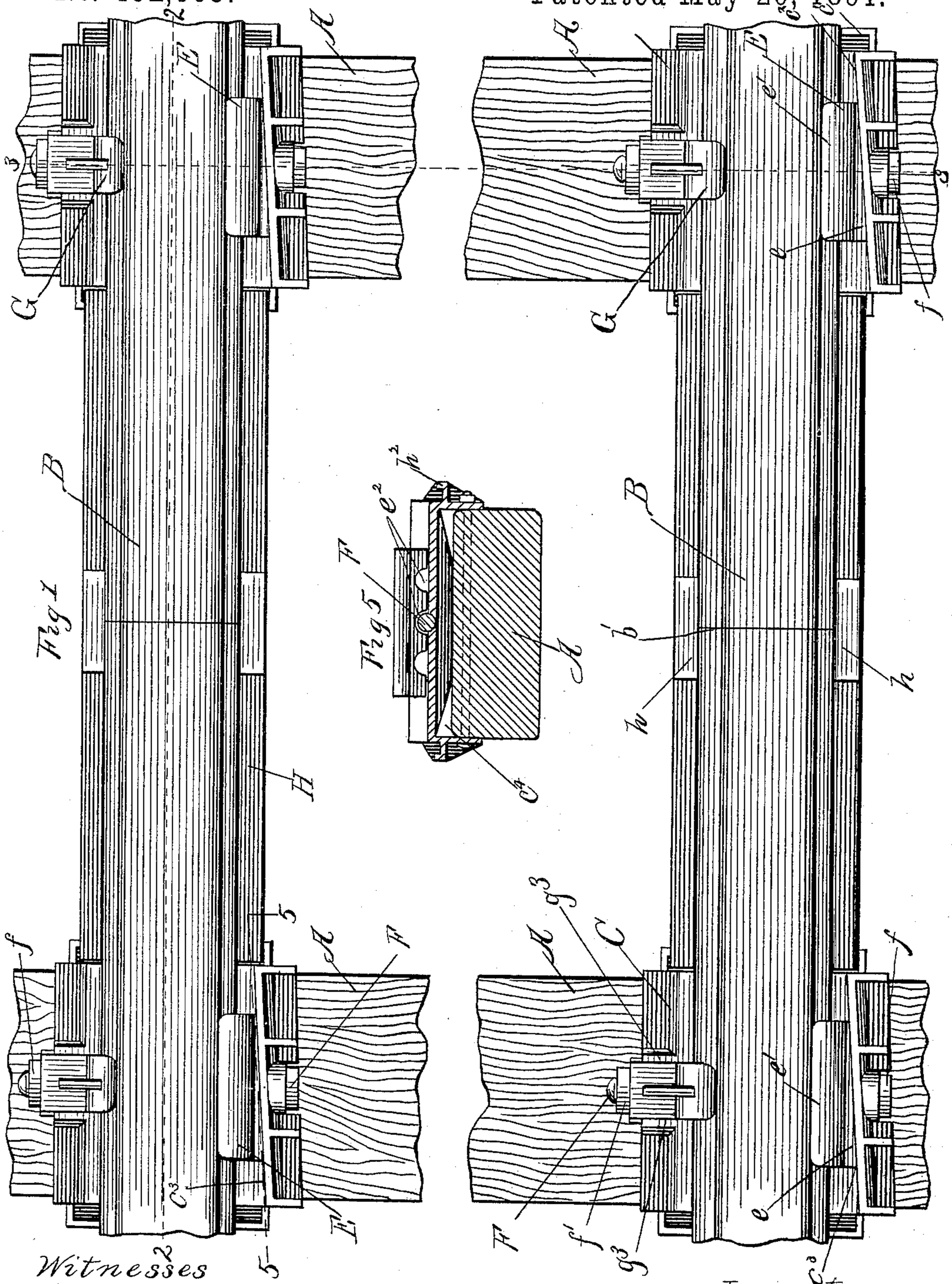
(No Model.) 2 Sheets—Sheet 1.

G. B. FISHER.

RAILWAY RAIL FASTENING AND SUPPORT.

No. 452,863. Patented May 26, 1891.



Witnesses
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(No Model.) 2 Sheets—Sheet 2.

G. B. FISHER.

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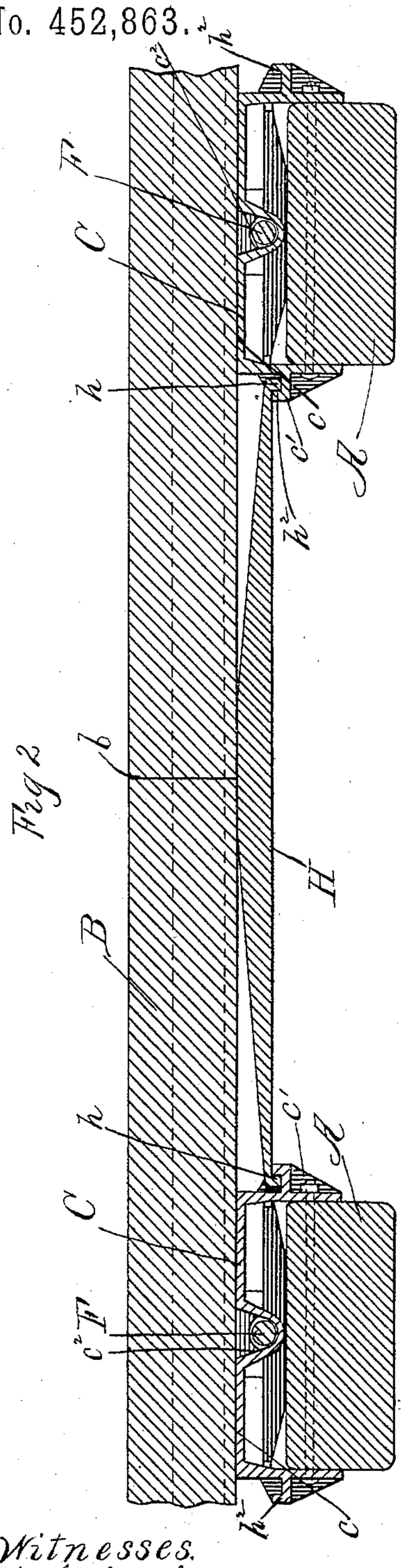

Fig 2

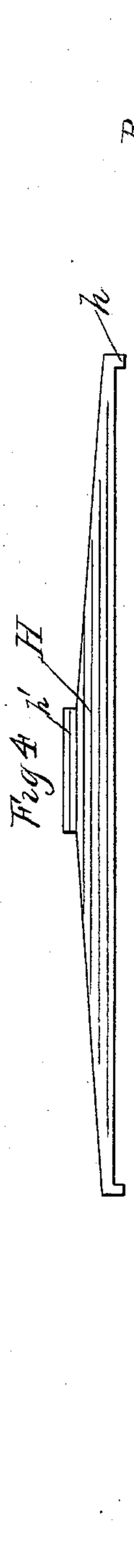

Fig 4

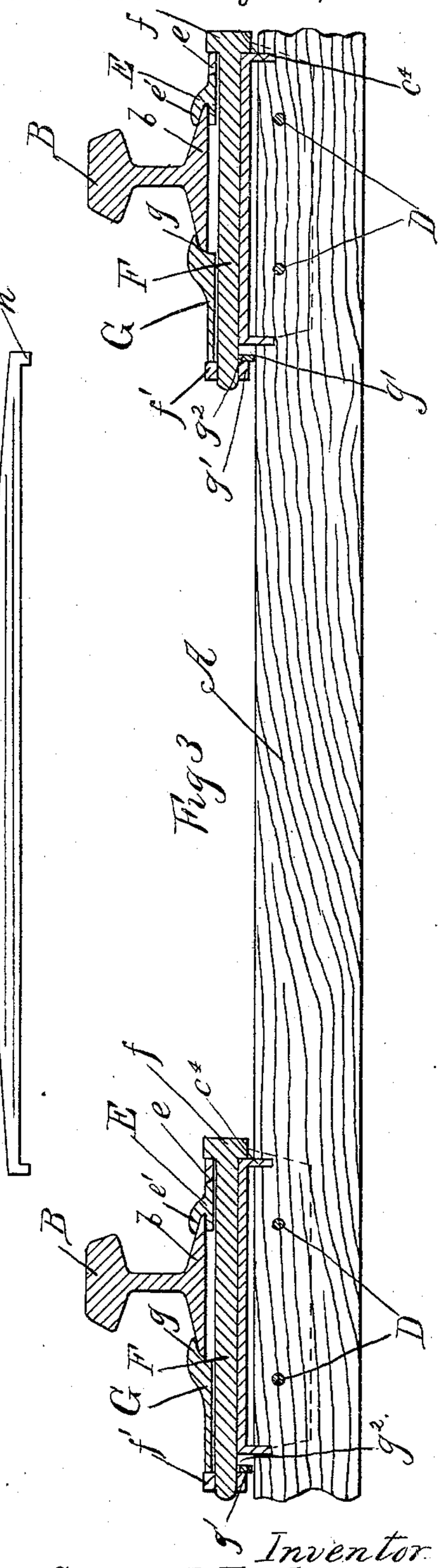

Fig 3

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UNITED STATES PATENT OFFICE.

GEORGE B. FISHER, OF CHICAGO, ILLINOIS.

RAILWAY-RAIL FASTENING AND SUPPORT.

SPECIFICATION forming part of Letters Patent No. 452,863, dated May 26, 1891.

Application filed August 9, 1890. Serial No. 361,550. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. FISHER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Railway-Rail Fastenings and Supports, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a plan view of a section of railway provided with my improved rail fastening and support; Fig. 2, a longitudinal section taken on the line 2 2 of Fig. 1; Fig. 3, a cross-section taken on the line 3 3 of Fig. 1; Fig. 4, a detail elevation of the rail-support detached, and Fig. 5, a detail section taken on the line 5 5 of Fig. 1.

My invention relates to a metal fastening for securing railway-rails to the ties and a support connected with the same for sustaining the rails at joints when they occur between the ties.

The object of the invention is to provide broad bearings for the edges of the rails and adjustable clamps for securing the rails to these seats, so that they may be readily removed therefrom, and also to support the rails at joints between the ties by a device connected with the respective fastenings.

I will proceed to describe in detail a fastening device in which I have carried out my invention in one practical form, and will then point out more definitely in claims the particular improvements which I believe to be new and wish to secure by Letters Patent.

In the drawings, A represents the ties, which are of wood or any other suitable material, and B the rails, which are of the usual T-head form. The chairs C, on which the rails are seated and by which they are secured to the ties, are of cast metal and of peculiar construction. These chairs are provided with a flat upper surface *c* and with depending side flanges *c'*, which fit down over the sides of the ties and are secured thereto by bolts D, as seen in Fig. 2 of the drawings.

In the flat upper face of the chair there is a groove or depression c^2 running centrally almost across the chair and preferably concave. This groove runs out at one edge of the chair, but not at the other, and at the latter edge and outside of the groove there is a second groove or channel c^3 cut in the face of the chair and running at an inclination slightly from a perpendicular to the cross-groove c^2. This latter groove c^3 is of dovetail form in cross-section. The former groove c^2 is formed by a bend in the surface-plate of the chair, as seen in Figs. 2 and 3 of the drawings. There are also short perpendicular flanges c^4 depending from the edges of the chair at right angles to the flanges *c'*. These latter flanges are triangular-shaped, and the apex of each is intended to be set into the surface of the tie, as seen in said Figs. 2 and 3.

One member E of the clutch or fastener by which the rail is secured to the chair is constructed with a base *e*, adapted to fit the dovetail groove c^3 and to slide back and forth therein. On the top of this base is a long curved flange or hook *e'*, which is bent inward from the base when the latter is properly placed in its groove. This hooked flange is, however, arranged at an angle to the base *e* and at such an angle that when the latter is placed in the groove c^3 the hook will stand at right angles to the cross-channel c^2 and parallel to the rail when placed on the chair. The bottom of this clutch-piece is also provided with a series of cross-grooves e^2, which serve to fasten this piece in position, as will be described presently. It will be seen from this description that this clutch-piece E may be adjusted along the length of the inclined groove, but that in this adjustment the hook-flange will always be at right angles to the cross-groove c^2, the effect of the adjustment being simply to move said hook in and out with reference to the edge of the chair.

A rod or bolt F passes through the chair from one side to the other, resting within the cross-groove c^2. This is the clutch-fastening rod, and is provided at one end with a head *f* and at the other with a nut *f'*. It passes underneath the clutch-piece E, and the cross-grooves e^2 in the bottom of the latter are adapted to fit over the upper portion of the rod, thereby securing this piece in the position to which it may be adjusted. At the other end of the rod is a second clutch-piece G, which is provided at one end with a hook-flange *g* and at the other with a dependent tail-piece *g'*, having a perforation g^2, whereby

it is adapted to be fitted upon the end of the rod, as seen in Fig. 3. At the open end of the cross-groove c^2 there are dovetailed seats or guideways g^3, extending inward a little way and adapted to receive this loose clutch-piece G, which is shaped in cross-section to fit these seats. It will be seen, then, that when the rod F is inserted in the chair the clutch-piece G may be slipped upon the free end thereof and at the same time slid into its seats, and then may be drawn upon the rod by turning up the nut f' against it. Now in order to fasten the rails to the ties these chairs are first secured to the latter, as already described, and in proper position. The clutch-pieces E are slipped into their seats and the rods F passed through, as already described. The rails are then set upon the chairs and the opposite clutch-pieces G applied to the ends of the rods and slipped into their respective seats. The hooked flanges on the two clutches rise just above the face of the chairs, so as to lap over and embrace the two edges of the foot b of the rail, as seen in Fig. 3, when it is obvious that upon turning up the nuts on the ends of the rods the clutch-piece G will be thrust inward until the foot of the rail is firmly grasped by the two clutch-pieces, and thereby securely fastened to the chairs. The adjustment of the clutch-piece E along its inclined seat provides for such variation as may be necessary to suit rails of different sizes and also to secure accuracy in gage. With these chairs I also employ a special support for the rail-joints when they occur between the ties. For this purpose I provide a metal support H, which is of a length to reach from chair to chair, and is provided at each end with a short depending hook h, while at its center it is slightly arched to present a bearing-surface. On each side of the chairs there is upon the outside of the flanges c' a horizontal hook-flange h^2, these hooks being adapted to receive the hooked ends of the support H. Now whenever the ends b' of adjacent rails come together to form a joint between the ties this support H is applied, as seen in Fig. 2, being hooked onto the chairs of the respective ties and being of such shape and arrangement as to come up directly underneath the rails at the joint thereof, the ends of the respective rails resting on the central arch. This supporting-bar is made wider than the foot of the rail, and is provided at each edge with a short projecting flange h', between which the rails rest. When in position, as described, it sustains the rails at the joint and effectually prevents the objectionable spring or depression of the latter at these points.

In details of construction there may be some changes in the devices as here shown and described. Hence I do not confine myself to all these details of construction.

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

1. The chair C, in combination with the clutch-piece E, seated in a longitudinal groove, along which it is movable, the clutch-piece G, seated at the opposite edge of the chair and guided to slide inward toward the clutch E, the fastening-bolt F, and the railway-rails B, substantially as and for the purposes specified.

2. The chair C, provided with the cross-groove c^2 and inclined groove c^3, arranged nearly at right angles to the former, in combination with the clutch-piece E, fitted to the groove c^3 and having a hook e' arranged at right angles to the cross-groove c^2, the fastening-bolt F, arranged in the cross-groove c^2, the clutch-piece G, mounted in seats adjacent to the cross-groove c^2 and provided with a tail-piece g', through which the bolt passes, and the rail B, substantially as and for the purposes specified.

3. The chair C, provided with side hooks h^2 and fastened to the ties, in combination with supporting-bars H, provided with hooks h, adapted to engage with the said chair-hooks and extending from one tie to another, and the rails B, resting at the joint upon said support, substantially as and for the purposes specified.

GEORGE B. FISHER.

Witnesses:
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A. M. BEST.