

(No Model.)

W. GOLDIE.

RAILWAY RAIL CHAIR OR FASTENING.

No. 356,760.

Patented Feb. 1, 1887.

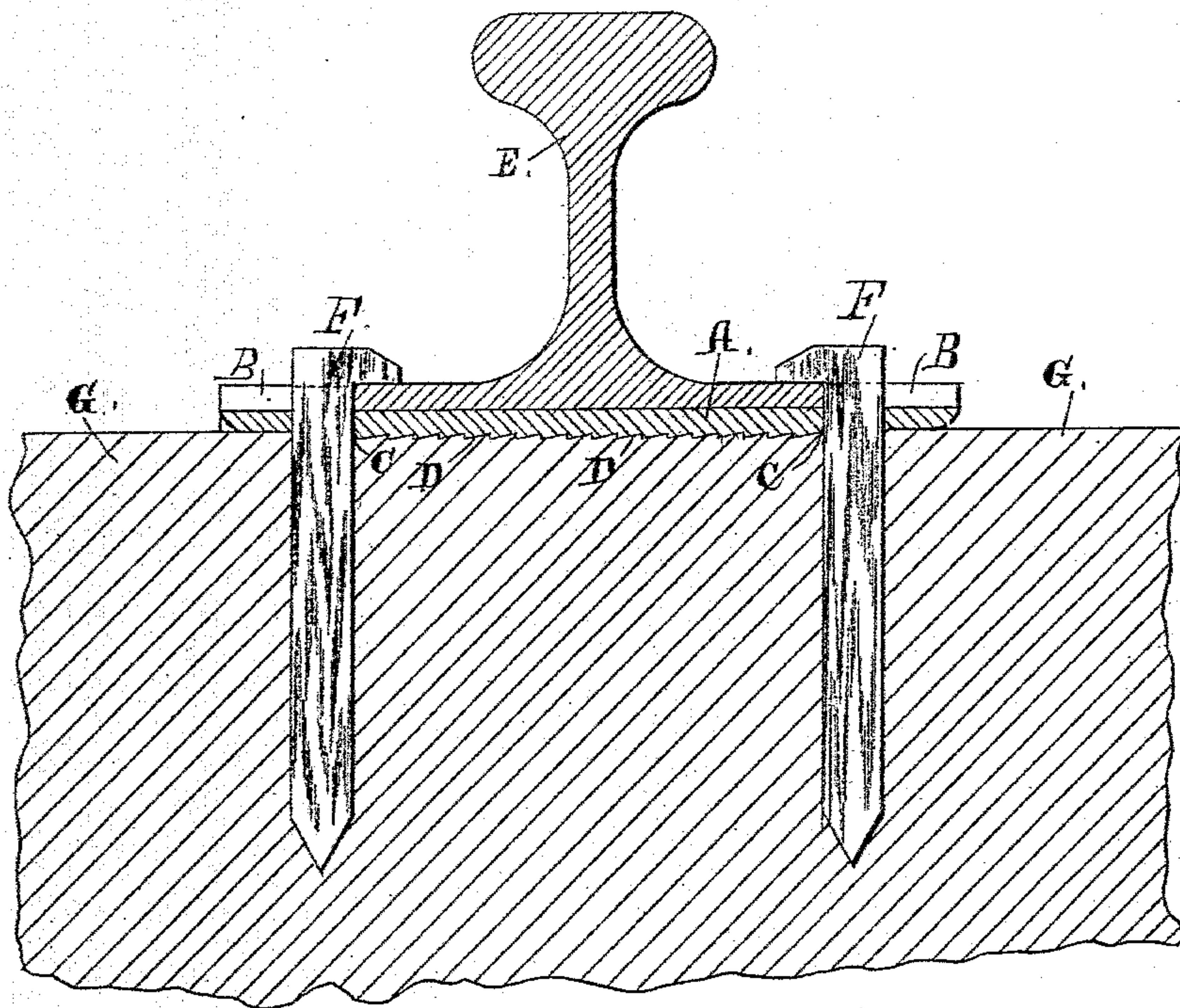


Fig. 2.

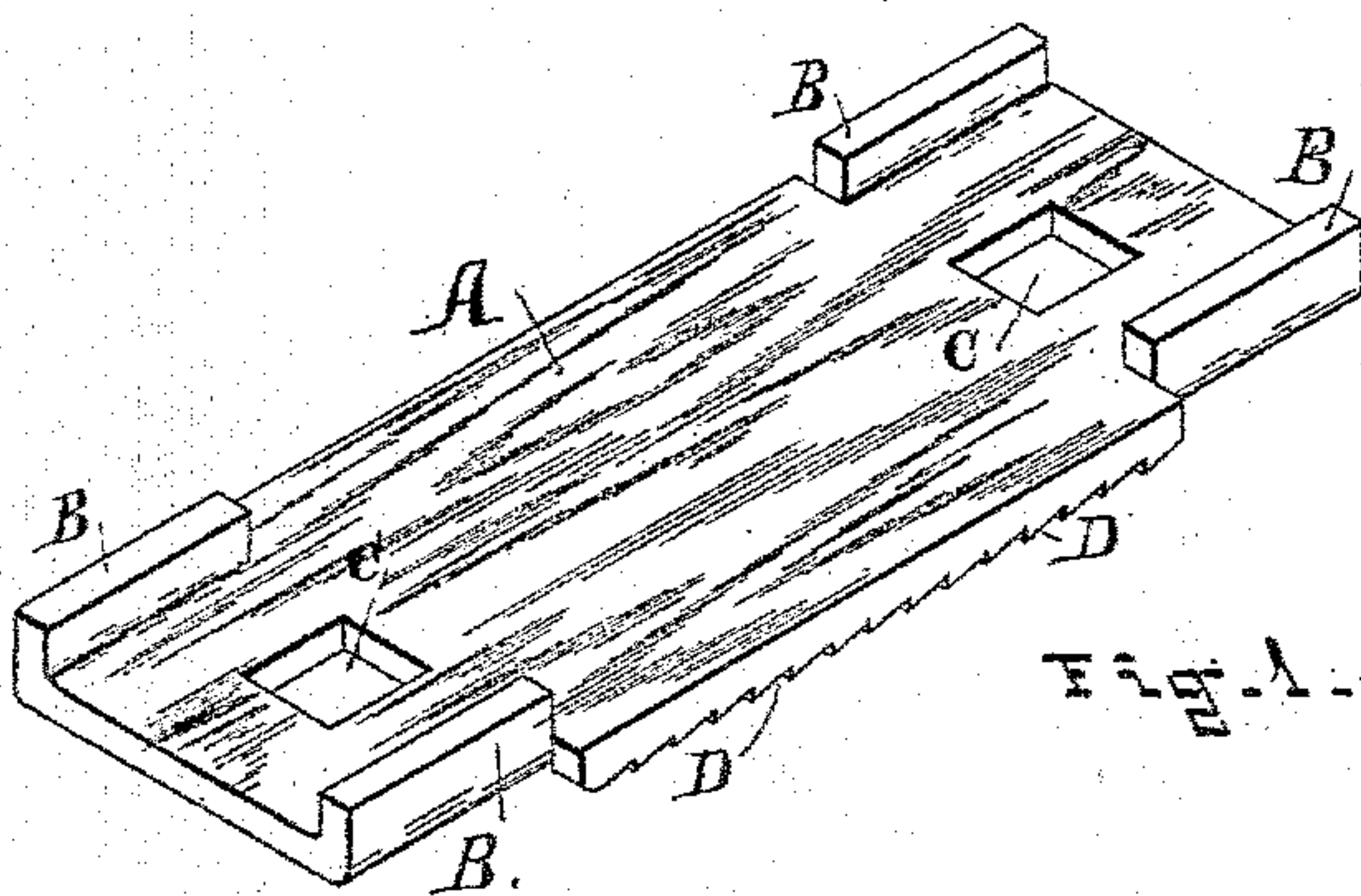


Fig. 1.

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RAILWAY-RAIL CHAIR OR FASTENING.

SPECIFICATION forming part of Letters Patent No. 356,760, dated February 1, 1887.

Application filed September 9, 1886. Serial No. 213,165. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GOLDIE, a citizen of the United States, residing in West Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Railway-Rail Chairs, of which the following is a full, clear, and exact description, which will enable others skilled in the art to make and use the same.

Heretofore the permanent way of railways has been divided into two great classes, viz: that in which the rail is fastened directly to the wooden tie or sleeper and that in which the rail is fastened to a heavy iron casting technically called a "chair," and the chair secured to the tie by spikes. The first system, while it has the merit of cheapness in the beginning, is very expensive in the end, owing to the heavy expense incurred in keeping the rails in line, because the strain is nearly all directed upon the spikes upon the outside of the rails, as the crowding action of the flanges of the wheels has a constant tendency to spread the rails and no tendency whatever to draw them together, and this is the force that causes the numerous accidents from spreading of the rails, which are both costly and dangerous to life. Another defect of this system is that the spikes having nothing to hold them up to their work and in close contact with the rail are very irregular in their bearings against the rail, a portion of them bearing very hard against it, while others do not touch it at all, and the consequence of this is that the necks of the spikes which bear hard against the rail are rapidly cut away with the extreme friction and grit always present on the track, while the others fail entirely to accomplish the end for which they were intended, and thereby diminishing the usefulness of the available means employed at least seventy-five per cent. The use of the chair is confined to roads where the high price of ties counterbalances the extremely high cost of laying a track with the chairs as a rail-fastening—an expense which has been materially augmented by the erroneous principle involved in their construction. In all the chairs heretofore made the idea appears to have been held that bulk must give strength, and hence all the chairs are bulky, heavy, and cumbersome, extending over a large area on the tie, and from their rigidity, large bearing

on the tie, and the brittle nature of the substance employed (cast-iron) they require a special dressing of the tie to give them a level and uniform bearing. As the rail is strong enough to resist deflection between the ties, so the tie is strong enough to support the rail. Therefore the only effective work performed by the ordinary chair is to equalize the pressure upon the spikes, and when the chair is let into the tie it operates to transfer the lateral pressure to the shoulder on the tie.

The objects of my invention are to accomplish all these ends in a much more economical manner and to construct a spike-binder of such a form that all unnecessary weight and area is avoided, which does not require any special adaptation or dressing of the tie to place it in position, which will be convenient and handy in use and readily applicable to roads already built, and which will utilize the entire resisting power of the spikes and use the superincumbent weight of the passing train as an auxiliary in tending to hold the rail and binder in their places. I attain these objects by the device illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved rail-chair or spike binder. Fig. 2 is a vertical section of the rail and tie and of my improved chair when in position for use.

G represents an ordinary railway-tie, and E is the rail to be secured thereto.

A is a plate or web of metal placed upon the tie and beneath the rail and with its ends extending beyond the rail and provided with the holes C, through which and into the tie are passed the spikes F, with the heads of the spikes catching over the flange of the rail. These holes C are of a proper distance apart to bring the spike-body to bear firmly against the flange of the rail, and stops B are formed on the corners of the plate A by turning up a portion of the side edges of the plate, so the turned-up portion or stops will be at right angles with the plate and with their upper edges nearly even with the upper side of the rail-flange, the inner ends of the stops being in alignment with the inner edges of the holes C and bearing against the edges of the rail-flanges. These stops operate to hold the plate in position in relation to the rail before the spikes are driven, and also to retain the rail in position

should one of the spikes become broken or removed, as well as to assist in preventing undue wear upon the spike-body by the flange of the rail.

5 The under side of the plate, between the spike-holes C, is provided with serrations or teeth D, formed with one vertical and one inclined side, the vertical side being placed facing the outside of the track, and the inner end
10 of the under side of the plate is slightly rounded, which allows the rails to be raised and the plate passed beneath with its rounded end forward, and on the plate being pushed to its proper position the rail drops between the
15 stops B and is ready for the spikes.

It will be noticed that the leading feature of this invention is the thin metallic band, of limited area, connecting the two spikes together and drawing the rail up tightly to the
20 stops, and from its limited area and thinness being adapted to be forced by the weight of the train into the face of the tie, and the serrations being formed with a ratchet-like tooth, the vertical side of which is placed toward the
25 outside of the rail, thereby gives the greatest power of resistance against any force tending to spread the rails.

The entire thickness of the plate A should be about three-sixteenths of an inch, as I find
30 this gives sufficient strength to properly inclose both spikes, and the width of the plate is about three inches, which brings the stops B in a proper position to allow a claw-bar to pass between the stops and grasp the spike
35 for its removal from the tie.

The substitution of the stops B for the flanges used in all other chairs is one of the most valuable features of the invention, as it avoids all of the complications of fastening in-
40 cidental to the use of other chairs, which have to be slipped on from the end of the rail or be constructed of two parts and secured to the tie by a greater number of spikes.

In other chairs the thickness of the flange
45 on the chair requires the hole in the flange to be countersunk, in order to permit the spike to grasp the flange of the rail, and this construction renders the withdrawal of the spike from the tie very difficult, if not impossible,
50 while by my arrangement the spike is as free to be grasped for removal as if driven directly into the tie without the chair. Other great advantages of this form of chair are that it is easily and quickly applied to roads that are
55 already built, as by withdrawing the spikes from the tie the rail may be slightly sprung

upward and the chair then pushed beneath the rail without entirely loosening the rails from the ties or changing their position, which avoids the expense of relining the track, and
60 the spike-holes being of a uniform distance between and properly located to cause the spikes to bear firmly against the flanges of the rail it operates to cause such spike to bear firmly against the edges of the rail-flange, and
65 attain the objects of holding and supporting the rail in the best manner, and the spikes, being tied together by the plate, operate to distribute the spreading force of the flanges of the wheels upon both of the spikes instead of
70 only on the outside spike, as is the result when the rail is spiked directly to the tie, which renders the plate particularly beneficial for supporting the spikes in curved portions of the track.

This spike-binder is not in any way designed
75 to hold the rail to the ties or to support the weight of the rail, but is especially designed by its thinness and limited area to be forced into the tie by a passing train and allow the
80 rail to be supported principally by the wood of the tie on each side of the spike-binder, which operates to avoid the noise of the moving train which occurs when the rails are supported by direct contact with solid metal fast-
85 enings.

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

1. A binder for railway spikes, consisting of
90 a metal plate placed between the rail and tie, and with its ends extending on each side of the rail, and provided with holes for the rail-spikes, the said plate being of thin and narrow dimension, whereby it is forced into the
95 tie by the passing train, substantially as and for the purpose herein set forth.

2. A binder for railway-spikes, placed between the rail and tie, and consisting of a thin
100 and narrow plate of metal having its ends extending beyond the rail and provided with spike-holes, and having the side edges of the extended portions turned upward and forming guide-stops, as B, as herein described, and for the purpose set forth.

In testimony whereof I hereunto affix my
105 signature in presence of two witnesses.

WILLIAM GOLDIE.

Witnesses:

W. H. POWER,
J. E. THOMAS.