

(No Model.)

J. HOWE.
RAIL FASTENING.

No. 308,771.

Patented Dec. 2, 1884.

Fig. 1.

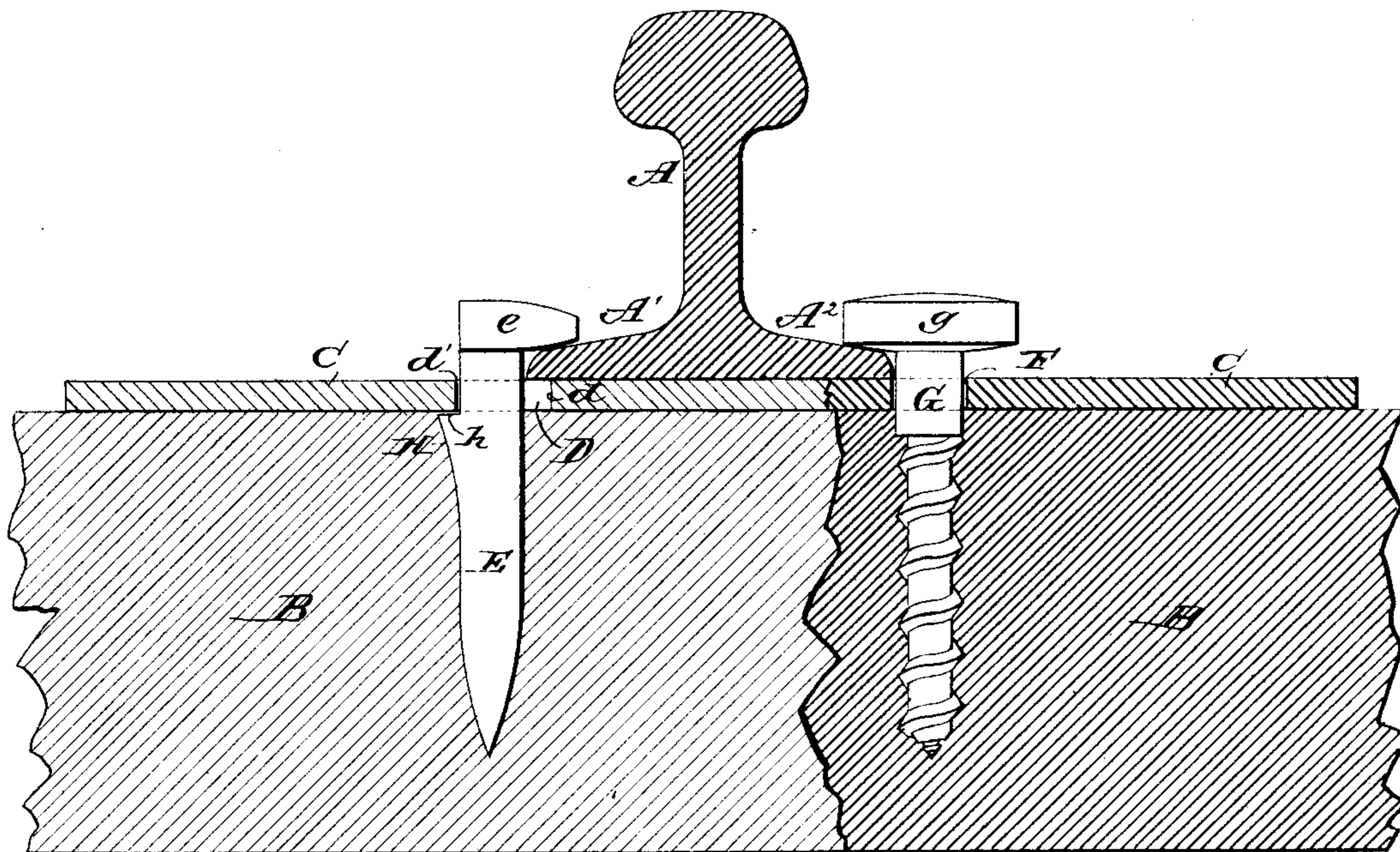
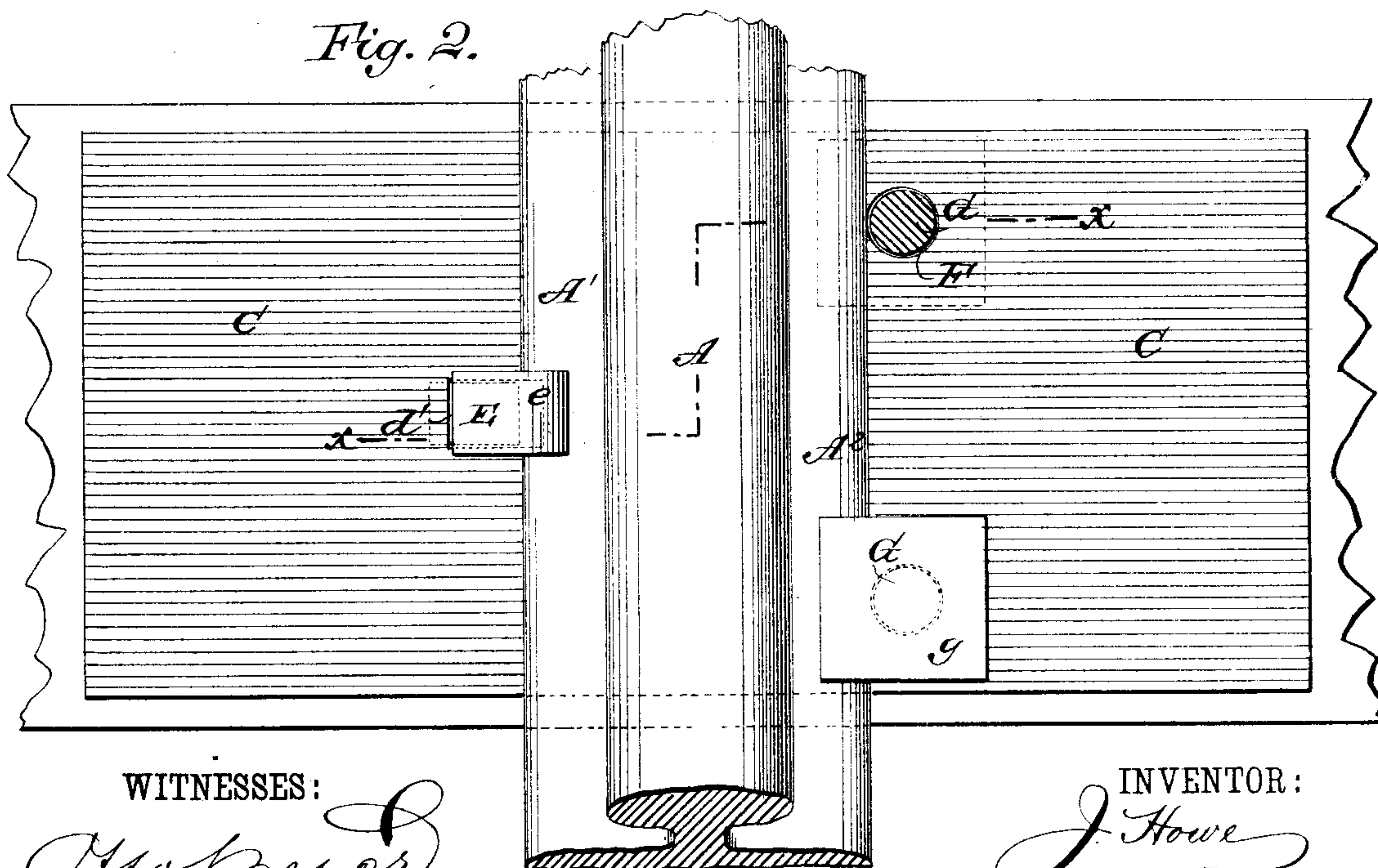


Fig. 2.



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RAIL-FASTENING.

SPECIFICATION forming part of Letters Patent No. 308,771, dated December 2, 1884.

Application filed June 13, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN HOWE, of Newhall, in the county of Los Angeles and State of California, have invented a new and Improved Rail-Fastening, of which the following is a full, clear, and exact description.

The object of my invention is to provide a simple, inexpensive, efficient, and durable fastening to secure railway-rails to the ties or sleepers of the track in a manner to prevent spreading of the rails or the splitting of the ties in laying the rails, and to protect the ties from cutting wear of the rails by the traffic over the road.

The invention consists in wear-plates interposed between the rails and the ties, and apertured to receive headed spikes and screws at opposite base-flanges of the rails, the heads of the spikes locking over the base-flange of the rail at one side, and lips or shoulders on the spikes locking under the wear-plates on that side when the screws are turned home through their apertures in the wear-plates at the edge of the opposite base-flange of the rail, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a longitudinal section of a railway-tie on the irregular line $x\ x$, Fig. 2, and a cross-section of the railway-rail, showing my improved rail-fastening applied; and Fig. 2 is a plan view with one of the inside screws in horizontal section taken just below its head.

The letter A indicates a railway-rail at the left-hand side of the track. B is one of the ties or sleepers. C is a metal wear-plate or chair interposed between the rail-base and the tie.

For ordinary railway tracks and traffic the preferred dimensions for the wear-plate C are fourteen inches long, six to seven inches wide, and about three-eighths of an inch thick; but the size may vary with the degree of hardness of the tie, a hard-wood tie not requiring so large or thick a wear-plate.

Next to the outside flange, A' , of the rail I punch a rectangular hole, D, in the wear-plate C, and about at the transverse center of the plate and tie, and through which hole D I drive the spike E, and next the opposite or

inside flange, A^2 , of the rail I punch in the plate C the two round holes F, through which to turn the screws G down into the tie. The holes F are formed one at either side of the longitudinal center of the wear-plate, so that the heads $e\ g$ of the spike and screws, respectively, take together a triangular hold on the base-flanges of the rail. The spike E has a projecting lip, H, at the back, with a square top or shoulder, h , formed at a distance from the under side of the spike-head e corresponding to the thickness of the rail-flange A' and the wear-plate C, and the hole D of the wear-plate is sufficiently long to permit the body of the spike E with its lip H to be driven through it into the tie.

In laying the rails they will be set on the ties B and wear-plates C, and the plates C will be set so that the inner ends, d , of the spike-holes D will lie about in line with the edge of the outside rail-flange, A' . The spikes E will now be driven home through the holes D, which will bring the spike-heads e hard upon the rail-flange, and carry the shoulders h of the spike-lips H just below the lower faces of the wear-plates C. The wear-plates will now be driven inward along the faces of the ties until the outer ends, d' , of the slots D come against the spikes E above their shoulders h , which, while still locking the rails to the wear-plates and ties by the spikes, will also lock the spikes to place by the wear-plates, and will also carry the holes F F of the wear-plates into line with the edges of the inside rail-flanges, A^2 , so that the screws G may be entered through holes F and into the ties, and their heads g be turned down upon the flanges A^2 to complete the fastening, as clearly shown in the drawings. A like fastening will be provided for the right-hand rail of the track.

By the use of my improvement the wear-plates not only protect the ties from being cut by the pressure of the rails, but serve also, aided by the weight of and on the rails, to lock the spikes down and prevent them from jarring loose and lifting out of place, and the spikes E cannot be drawn without first removing the screws G. The edge of the outside flange, A' , coming as it does against the side of the spike E below its head e , and the screws G giving such a firm downward hold on the inside flange, A^2 , it will be seen that a spread-

ing of the rails, either by their outward movement bodily or by a tipping outward of the heads of the rails, is quite fully guarded against and prevented.

5 In using a single outside spike at the center of the ties, and the inside screws, G, near the side edges of the ties, the ties will not be split in laying the rails.

10 With my improved rail-fastening fewer ties may be used, and those used will last longer, which will compensate largely if not wholly for the expense of the wear-plates, and the labor of driving down the spikes onto the base-flanges of the rails set directly onto soft-wood
15 ties when the rails sink into the ties is entirely avoided.

On mountain roads, for heavy traffic, the wear-plate C may extend along the tie from one side rail of the track to the other under
20 both rails, and in laying the rails with such continuous wear-plates the plates will be laid along the ties for the whole length of the rails, and the left-hand rail will be secured by first driving the spike E through
25 the slots D of the wear-plates and then driving the plates along the ties to lock the shoulder-lips *h* under the plates, and the screws G will be turned into the ties through the wear-plates at the inside flanges of the
30 rail substantially as above described for the single-rail wear-plate C. Then in laying the right-hand rail the spikes E will be driven down through their slots in the wear-plates, with the heads *e* of the spikes toward the left-
35 hand rail, and with the spikes preferably inclining outward toward the point until their shoulders *h* are about even with the under faces of the wear-plates. The outside base-flange of the right-hand rail will then be placed
40 along the spike-heads, and the rail then driven outward to force its said flange under the spike-heads and carry their shoulders *h* underneath the wear-plates at the outer ends of the spike-slots, and carry the bodies of the
45 spikes hard against the outer ends of the slots, and the wedging action of the rail-flange will draw the shoulders *h* of spikes up tightly to

the under side of the wear-plate. The screws G will then be set into the tie at the inner rail-flange, and the lock will be complete for both
50 rails.

Another method of laying both rails is to place the shouldered spikes E at the inside base-flange of the right-hand rail and the screws G at its outside flange. With this method the
55 spikes E will be driven along the outside flange of the hand-rail and the inside flange of the right-hand rail, whereupon the wear-plates will be driven along the ties to lock under the shoulders *h* of the spikes of both rails at once.
60 The screws G will then be applied at the sides of the rail opposite to the spikes, and the fastening will be complete. This last above-described method of laying the rails may in practice sometimes be preferred.
65

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

1. The combination, in a rail-fastening and with rails A and ties B, of the wear-plates C, apertured at D to receive the spikes E at one
70 base-flange of the rail, and at F at the opposite base-flange of the rail to receive the screws G, the heads *e* of said spikes E bearing on top of the base-flange, and the spikes having lips
75 and shoulders *h*, locking beneath the wear-plate, substantially as shown and described.

2. The combination, with the rail A, tie B, and wear-plate C, of the spike E, having a head, *e*, projecting at one side to grasp the
80 rail, and a lip and shoulder, *h*, at the opposite side to lock beneath the wear-plate, substantially as shown and described.

3. A railroad-spike formed with a laterally-extending head to grasp the base-flange of the
85 rail, and a lip or shoulder on its opposite side and below the said head, to engage beneath a wear-plate interposed between the rail and the tie, substantially as described.

JOHN HOWE.

Witnesses:

CHR. LEAMING,
GEO. POMEROY.