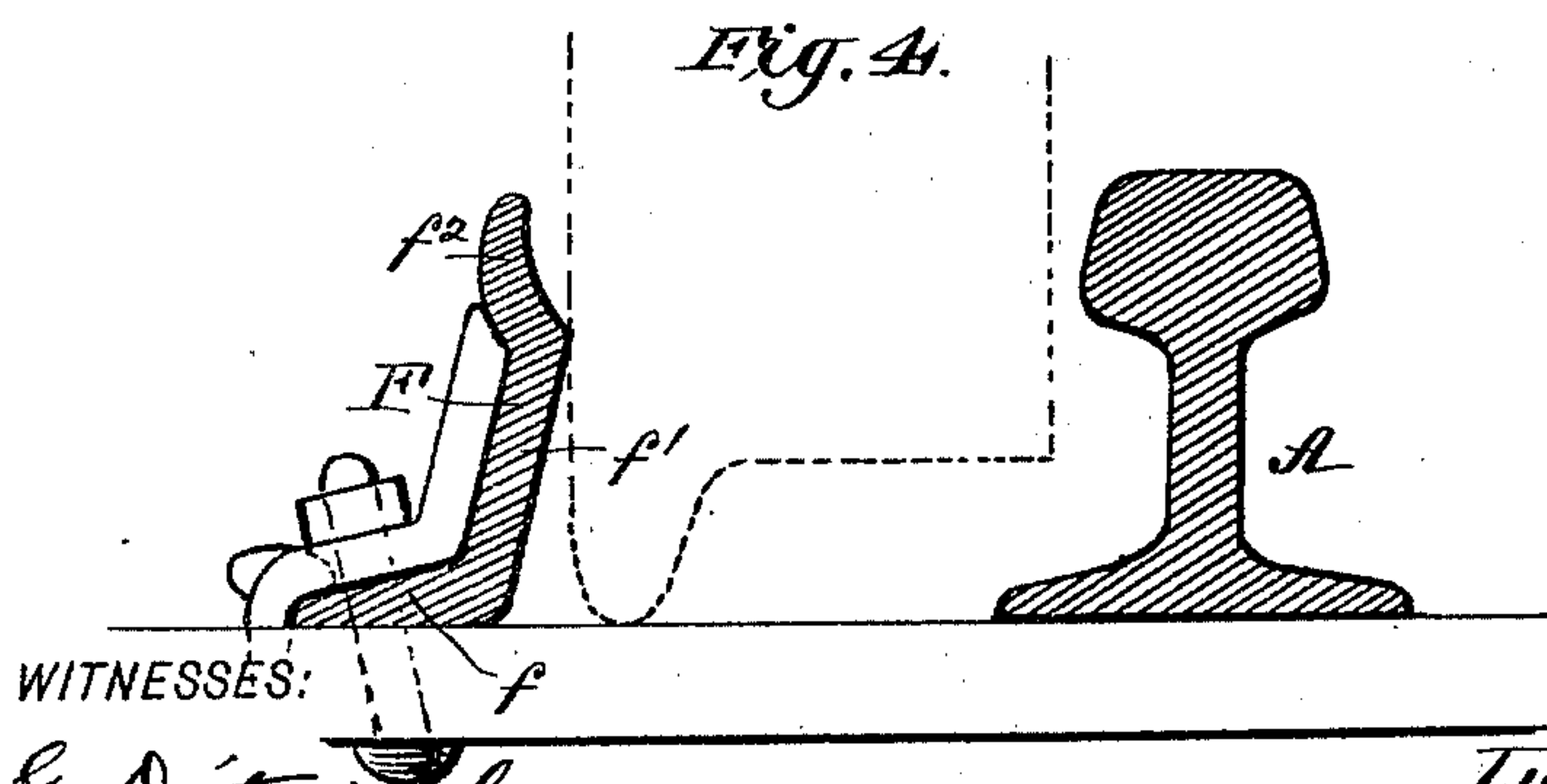
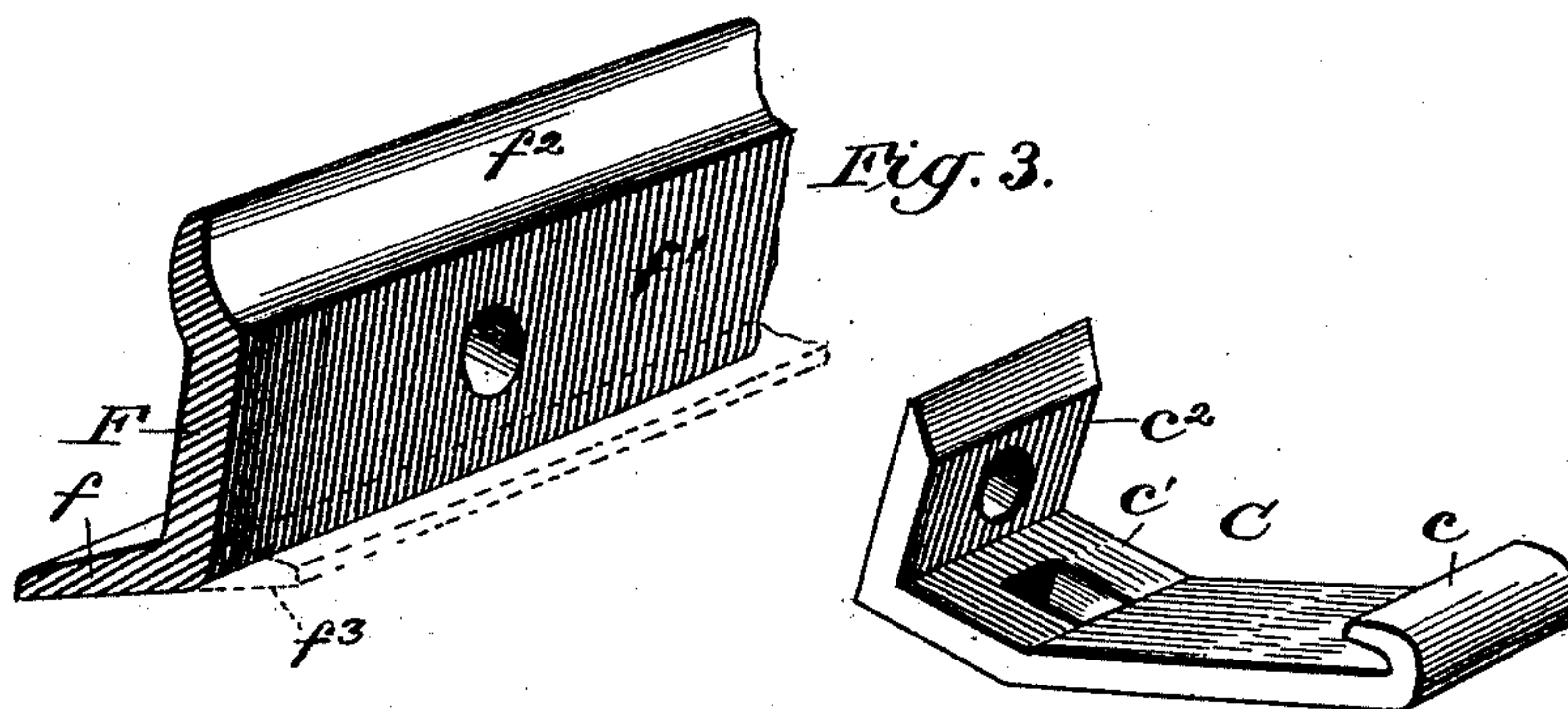
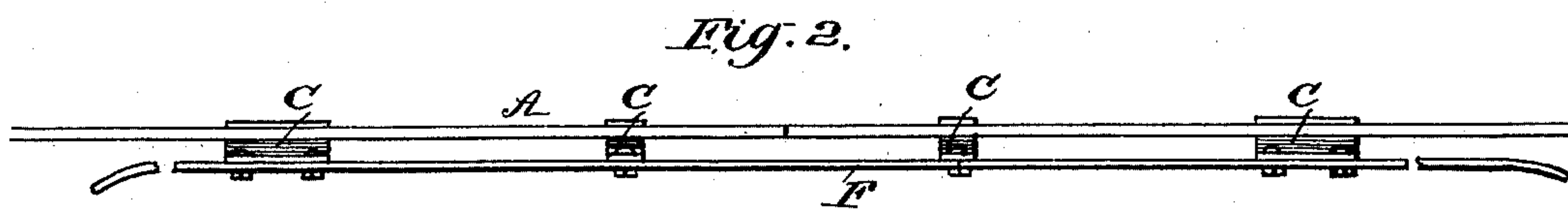
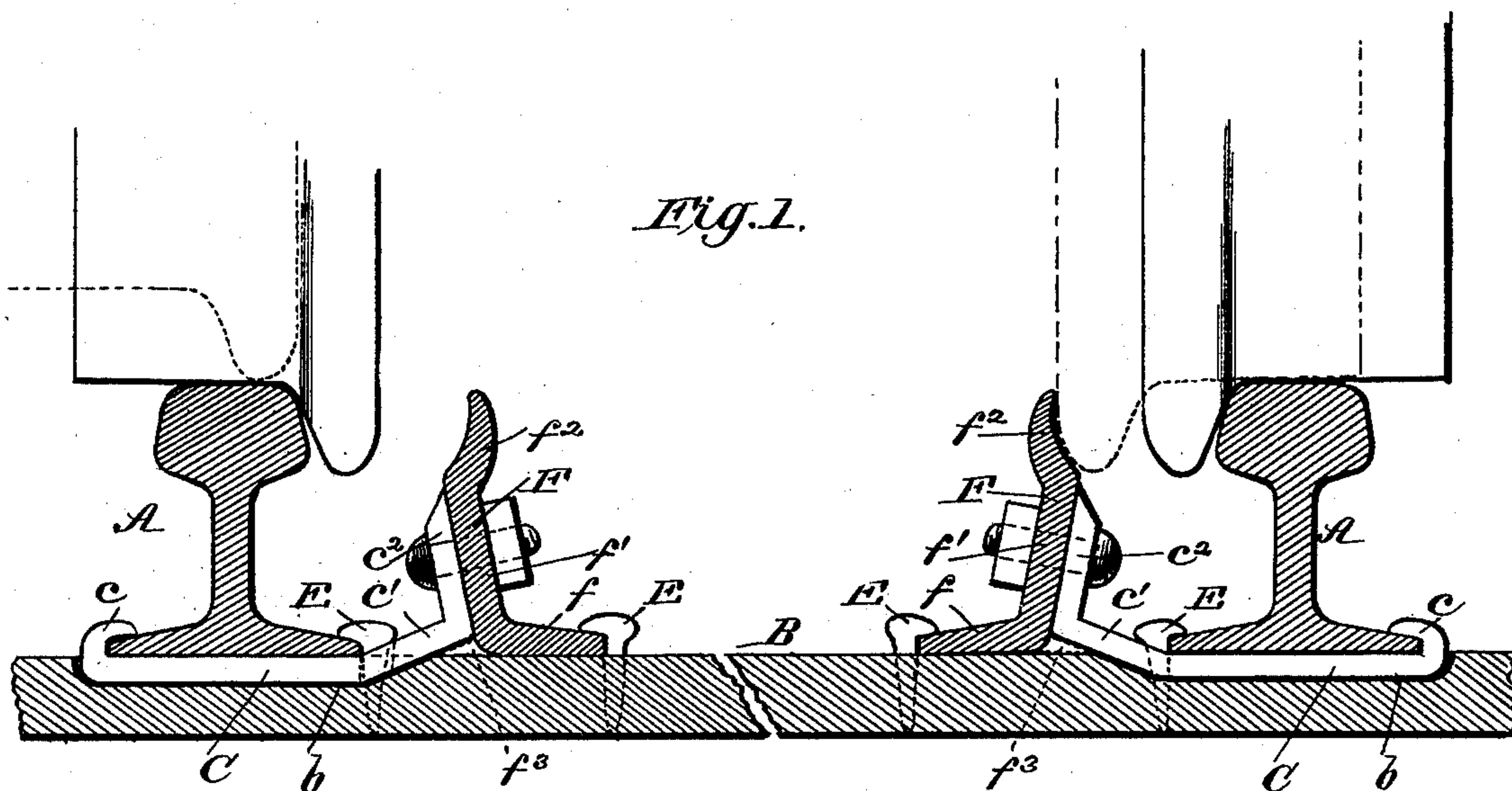


(No Model.)

L. J. BAKER.  
GUARD RAIL.

No. 509,788.

Patented Nov. 28, 1893.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

LEWIS J. BAKER, OF MARIETTA, MINNESOTA.

## GUARD-RAIL.

SPECIFICATION forming part of Letters Patent No. 509,788, dated November 28, 1893.

Application filed August 22, 1893. Serial No. 483,719. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS J. BAKER, residing at Marietta, in the county of Lac Qui Parle and State of Minnesota, have invented certain new and useful Improvements in Guard-Rails, of which the following is a specification.

My invention relates to rail road guard rails more especially adapted for use on bridges, curves, trestles, &c., and it has for its object to provide a guard rail, of a simple and effective construction, which will serve to keep the wheels on the rails, in case the track should spread, or a broken rail should be encountered.

With other objects in view, all of which will hereinafter be referred to, the invention consists in the peculiar combination and novel arrangement of parts, such as will be first described and then specifically pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of my improved guard rail devices as arranged for use. Fig. 2 is a diagrammatic plan view thereof. Fig. 3 is a perspective view of the several parts of the guard detached, and Fig. 4 is a vertical section of a modified arrangement of the guard.

Referring to the accompanying drawings A indicate the track rails, B the cross ties, which in the present construction are formed at suitable intervals with seat portions  $b$ , to receive the clamp plates C, to which the guard rails proper are secured. These tie plates it will be noticed have a hook portion  $c$ , which laps over the outer foot portions of the rails, while their inner ends incline upward as at  $c'$ , and terminate in vertical inclined extensions  $c^2$  to which the guard rails proper F, are attached in a manner presently described, the portions  $c'$  of such clamp members being provided with elongated apertures to receive the spikes E.

The guard rails F have a foot portion  $f$  which extends outward from the vertically projected portion  $f'$ . In some cases to give additional bearing space such foot portion may also extend inward as shown at  $f^3$ , in Fig. 3. It will be noticed that the guard rails have their vertically projected portions  $f'$  inclined inward, and the upper ends ter-

minated in curved portions  $f^2$  such curved portions being preferably extended outward and upward as shown in Figs. 1 and 2; the members  $f'$  being bolted to the clamp plate members  $c^2$ , which have elongated holes at the joint to permit contraction and expansion while the foot portions  $f$  are spiked to the tie as shown.

By referring now more particularly to Fig. 1 it will be seen that in case of spreading of the rails or where the wheel at one side crowds up on the rail (see dotted lines Fig. 1) the flange of the indrawn wheel will engage the curved end of the guard rail, the curve of such rail being made to receive such flange, and as the wheel is thus engaged it will not only be held from further lateral movement but the weight on such particular wheel will be shifted from the track and be applied on the guard rail, and as such rail is inclined inward from the vertical, it follows, that it will be held from canting or being bent outward. It being also readily understood that as the wheel which has mounted the rail is increased in circumference by the additional one and one-fourth inch flange, will (by being checked by the guard rail) run back to its proper place on the rail. In this way the guard rails serve to replace the wheels, when they lose their flange bearing, either through spreading of track, by tipping or being crowded over, broken rails, too heavy lateral friction, broken wheel flange, loose wheel, or by high or low joints of rails which cause wheels to jump rails  $c$ .

In the practical construction the guard rail joints are made to break joints with the rail joints, and thereby avoid the necessity of using fish plates, and such guard rails have their ends curved outward where they terminate as shown in Fig. 2.

By providing an inwardly inclined guard rail with a curved upper end as shown, the weight of the car will serve to hold down the guard and lessen the leverage, and thereby increases the difficulty of the guard to cant over, such guard being securely held in place by the clamp member C and the weight of the wheel when the wheel engages with it, making it as it were impossible for the wheels to leave the track.

In some cases, as for instance on a closely



boarded bridge, the guard can be set away from the T rails to a distance sufficient to allow the wheels to travel between the guard and rail the entire length of bridge, should the wheels leave the track. (See Fig. 4.)

In placing the clamps C, one is used at each joint and one at each quarter section of rail F, making four clamps to each rail of thirty feet, it being however obvious that a greater or less number may be employed.

From the foregoing description taken in connection with the drawings the advantages of my improved guard rail will be readily understood. The peculiar arrangement and connection with the T rail make it of such rigidity that it will not cant or be bent over by the lateral strain of the inner face or flange of the wheels.

The several parts are of a simple structure can be cheaply manufactured and readily assembled for use.

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

1. A railway rail provided with a guard member inclined inwardly toward the inner face of the head of the rail, as and for the purposes set forth.

2. A railway rail provided with a guard member inclined inwardly toward the inner face of the head of the rail and formed with a bearing face at its upper end, adapted to be engaged by the flange of the wheel, as it cants inward substantially as and for the purposes described.

3. A guard rail for railways, formed of a vertically disposed member inclined inwardly, its upper end terminating in a curved bearing face adapted to be engaged by the flange of the wheel as and for the purposes set forth.

4. A railway guard rail having its vertical member inclined inwardly toward the track rail and provided with clamp members ex-

tended under the rail and means for securing such clamps to the tie, all substantially as shown and described.

5. A railway guard rail formed of an inwardly inclined member having laterally projecting foot portions, adapted to be secured to the cross tie, and a clamp member having an inclined portion secured to the inclined portion of the guard, and a horizontal portion adapted to fit under the track rail and be clamped thereto, all substantially as shown and described.

6. A guard rail having its vertical or guard member inclined inward toward the track rail and formed with a bearing face at the upper end at a point inside of its vertical axis said face arranged to form a combined guard and bearing face for the wheel flange, substantially as and for the purposes described.

7. The combination with the track rail, of a guard rail having a clamped connection at its lower end with the tie, its vertical portion being inclined inward toward the track rail and formed with a bearing face at its upper end, and a clamp connection between such inclined member and the track rail, as and for the purposes described.

8. The combination with the track rail and the tie, of the inwardly inclined guard rail having a curved bearing face at its upper end, and lateral foot like portions adapted to be secured to the tie, a clamp member having an inclined portion connected to the inclined member of the guard, and a horizontal portion fitted under the track rail, its outer end having a clamp lip fitting over the foot of such rail and means for securing such clamp to the tie all substantially as shown and described.

LEWIS J. BAKER.

Witnesses:

ORLEY W. SAWYER,  
CONRAD ELLIS.