

(No Model.)

A. C. DE BARBARAN.  
PERMANENT WAY OF RAILROADS.

No. 351,693.

Patented Oct. 26, 1886.

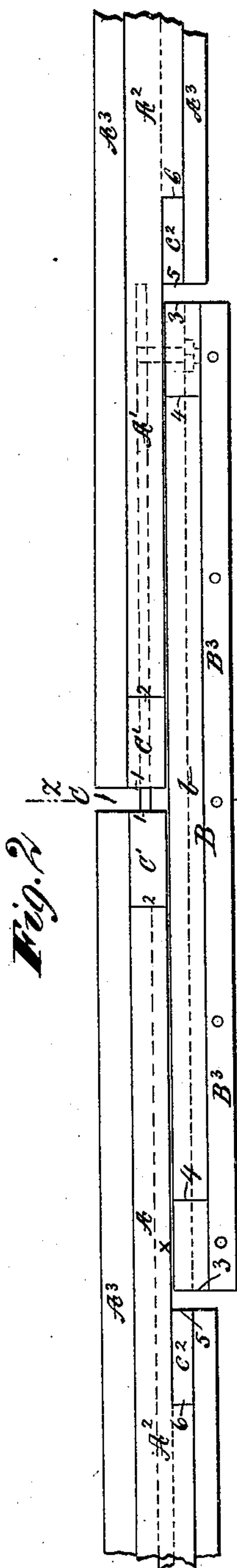
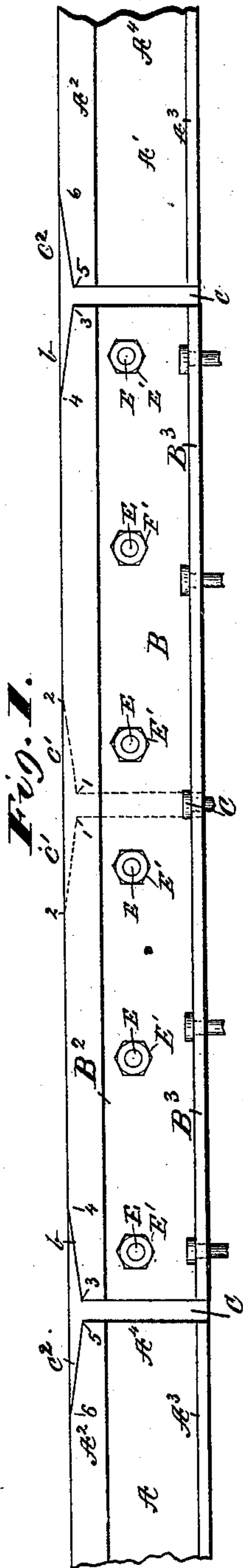


Fig. 3.

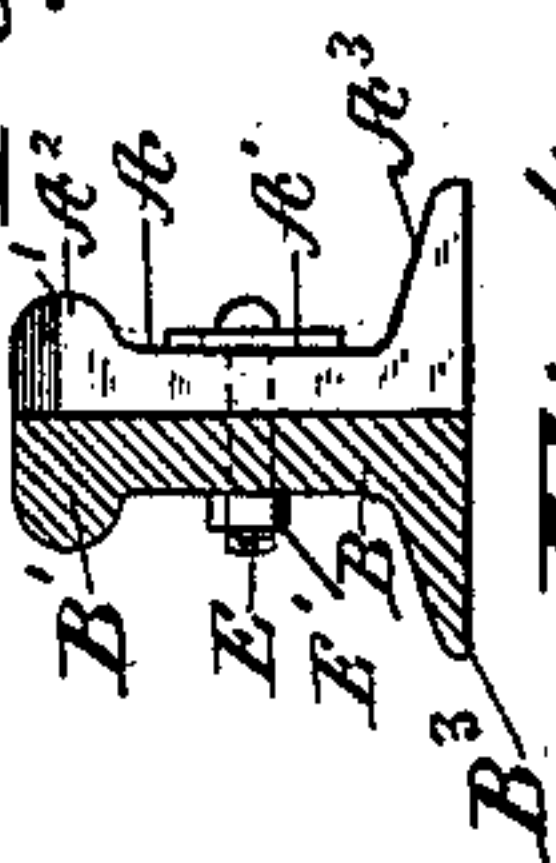
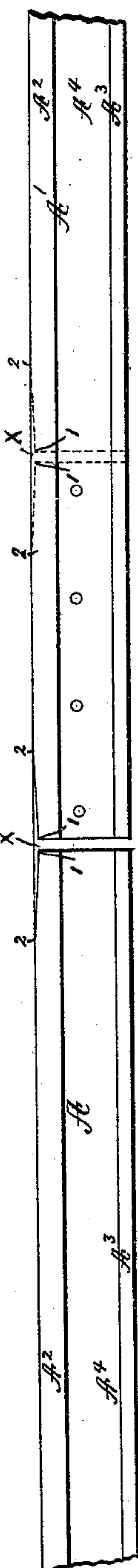


Fig. 4.



Fig. 5.



WITNESSES

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# UNITED STATES PATENT OFFICE.

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## PERMANENT WAY OF RAILROADS.

SPECIFICATION forming part of Letters Patent No. 351,693, dated October 26, 1886.

Application filed February 27, 1886. Serial No. 193,407. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT CONTI DE BARBARAN, a subject of the King of Italy, at present residing in the city, county, and State of New York, have invented certain new and useful Improvements in Permanent Ways of Railroads, of which the following is a specification.

My invention relates to improvements in the permanent way of railroads, and it has for its object the obtaining and maintaining a continuous even-running surface for the wheels of the rolling-stock at the sectional joints of the rails forming the permanent way.

According to the ordinary mode of constructing and applying railroad-rails for the foundation of a track, a space is left between each length or section of rail and the next, to allow of the expansion of the said rails and their consequent elongation, as well as also to accommodate their inclination to creep or shift in contravention to the thrust of the locomotive-wheels. The spaces thus left between the ends of adjoining rails, though small in extent when the road is first laid with new rails, soon become enlarged by the hammering of the tires of the wheels of the locomotives and rolling stock passing over the same, and as a consequence a considerable jolt is imparted to the passing train at each juncture of the rails, which is not only detrimental to the permanent way and rolling-stock, but is also unpleasant to passengers and injurious to many kinds of freight.

The object of my invention is to remedy these evils.

According to my invention the bearing-surfaces of the heads of the rails upon which the tires of the wheels run are slightly cut away or recessed, so as to form a depression at each end where they meet each other, and a bearing-surface is arranged by the side of the said depression on a level with the bearing-surface of the heads of the rails of the track. The rail ends are cut away or formed to allow of the interposition of a bearing-piece, either formed of a separate portion of rail, bolted or otherwise connected to the two ends of the adjacent rails; or, if preferred, the said surface may be formed on the ends of and be portions of the adjoining rails, the said pieces forming a continuous bearing, bridging over the space between the ends

of the heads of the rails. The ends of the subsidiary bridging pieces, or their equivalents, are also slightly depressed or cut away at their ends, and they are provided with bridging-pieces formed by the rails themselves, or otherwise, to form a continuous bearing-surface. By the application of my invention to the construction of the permanent way of railroads the necessity for the use of fish-plates is avoided.

The accompanying drawings form part of this specification and illustrate what I consider the best means of carrying my invention into effect.

Figure 1 is a side view, and Fig. 2 a plan of portions of two sections of rail constructed and applied according to my invention. Fig. 3 is a cross section on the line *zz*, Fig. 2. Fig. 4 is a plan view, and Fig. 5 a side view of a slight modification.

In each of the views similar letters of reference are employed to indicate corresponding parts wherever they occur.

*A A'* represent portions of two adjoining rails, the bearing-surfaces of the heads *A<sup>2</sup>* of which, at each end, are cut away or inclined from the points 1 to the points 2, so as to form depressions *C'* in the rails at the joints and prevent the tires of the wheels passing over such ends, coming in contact therewith or falling into the space between the same, the tire at this point being supported by a bearing-surface, *b*, forming (according to the arrangement shown in Figs. 1, 2, and 3) part of a separate piece, *B*, which is recessed into the side of the ends of the rails *A A'*, as shown clearly by Figs. 1 and 2. The piece *B* forms not only a bridge over the space *C*, between the ends of the rails *A A'*, but also takes the place of a fish-plate. The piece *B* is connected to the rails *A A'* by bolts *E* and nuts *E'*, or by other suitable means. At each of its ends the piece *B* is cut away or inclined at *b* from the point 3 to the point 4 in a similar manner to that in which the ends of the rails *A A'* are cut away or inclined at *C'* from the points 1 to the points 2.

The cut-away portions 34 of the piece *B* and the space *C* are bridged, as shown by Figs. 1 and 2, by a portion of the bearing-surfaces of the rails *A A'*. Part of the bearing-surfaces of the rails *A A'*, in a line with the piece *B*,



is cut away or inclined at C<sup>2</sup> from the points 5 to the points 6, the object of this cutting away or inclination at all junctures being to prevent the tires of the wheels striking on any end pieces or sinking into any recess, and consequently producing a hammering action, owing to the irregularity of the road.

At Figs. 4 and 5 I have shown a slight modification in the construction of my improved permanent way. In these views the part B is dispensed with, and the bridging of the joints of the rails A A' is effected by cutting away the ends of the rails in the form of a splice, as shown by Fig. 4, and bolting or otherwise securing the same securely together, as shown. The ends of the rails A A' at x x are cut away or inclined, as shown, from the points 1 to the points 2, and the juncture is bridged at the points x by the portions of the rail itself, in place of the separate piece B. In each of the constructions shown by Figs. 1, 2, and 3 and by Figs. 4 and 5 a continuous bearing-surface is formed to the permanent way from end to end, the breaks between the ends of the rails being bridged in the one case by the piece B and in the other by the ends of the rails themselves. By this construction, owing to the ends of the rails being cut away or recessed, so as to be out of the way of the passing wheels, the inconvenience, discomfort, and wear incidental to the old construction of permanent ways of railroads are avoided, and great economy and comfort of travel are obtained.

In the drawings I have shown my invention applied to single-headed rails adapted to be held in position by spiking directly to the ties; but it is equally applicable to double-headed rails which are secured in position by chairs or other holding means.

In Figs. 1, 2, and 3 I have shown the head A<sup>2</sup> of the rails A A', and also their bases A<sup>3</sup>, cut away flush to the faces of their webs A<sup>1</sup>, and the bridge-piece B, with a head, B<sup>2</sup>, and base B<sup>3</sup>, also cut away flush with the web B<sup>1</sup>, the consequence of which is that the combined rail at that point is wider than the remainder of the track; but this may be varied. The webs A<sup>1</sup> of each of the sections A A' may be also cut away, as well as the heads A<sup>2</sup> and bases A<sup>3</sup>, to the center of the web, thereby bridging the parts B and the rails A A', flush on their outer surfaces, in a manner similar to that in which the ends of the rails are cut away in the modification shown by Figs. 4 and 5.

In employing rails made according to my invention, as shown by Figs. 1, 2, and 3, with the parts each formed with full webs, the parts B are always on the outside of the track, away from the path of the flanges of the wheels. In manufacturing new rails the inclination of the ends of the surface of the heads of the rails, as well as the depressions in the sides of the heads and bases of the rails, may be formed in the process of manufacture, or by subsequent cutting by saws or planing-machines.

Rails now in use or manufactured may be converted readily to comply with the requirements of my invention. The inclinations or depressions in the ends of the surface of the heads A<sup>2</sup> of the rails, and on the surfaces of the heads of the subsidiary pieces, may be of angular, curved, or other suitable form. The depressions in the heads of the rails and the subsidiary pieces are formed of slight depth, sufficient to avoid all contact with the tires of the wheels while the same are passing the junction of the rails. The depressions in the rails are much narrower than the depth of the flanges of the wheels, by preference not exceeding one-fourth.

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

1. A permanent way for railroads, composed of a series of rails having the bearing-surfaces of their heads cut away or inclined, as described, at each end of each section and connected together by intermediate bridging-pieces, also having inclined or cut-away ends bridged by the rails they connect, substantially as and for the purpose described.

2. The combination, with a pair of rails formed with bearing-surfaces having cut-away or inclined portions at each end, of a bridging and connecting piece, B, substantially as and for the purpose described.

3. The combination, with recesses or depressions formed, as described, in the subsidiary bridging-pieces employed in conjunction with a railroad-track, of a bearing-surface arranged by the side of said recesses or depressions, the said bearing-surface being on a level with the bearing-surface of the track, substantially as shown and described.

In witness whereof I have hereunto set my hand this 20th day of February, 1886.

ALBERT CONTI DE BARBARAN.

Witnesses:

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