(No Model.)

3 Sheets—Sheet 1.

E. PERRODY.

RAILWAY.

No. 505,478. Patented Sept. 26, 1893.

FIG. 1.

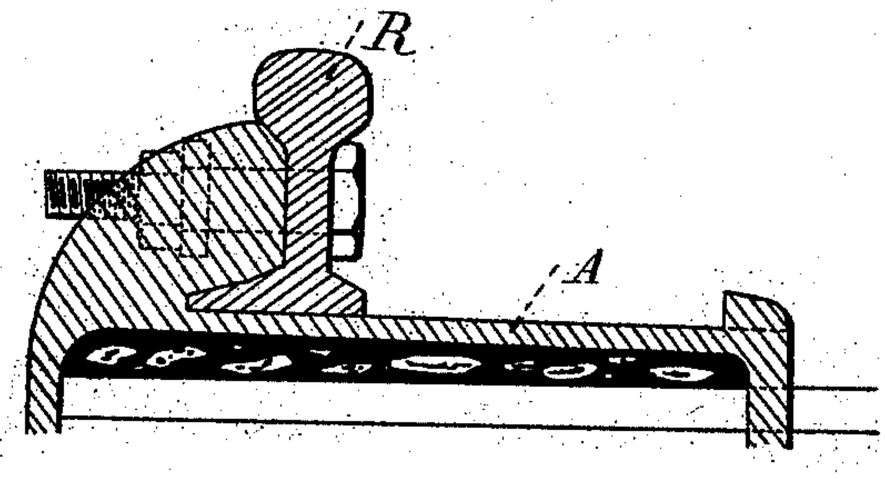


FIG. 2.

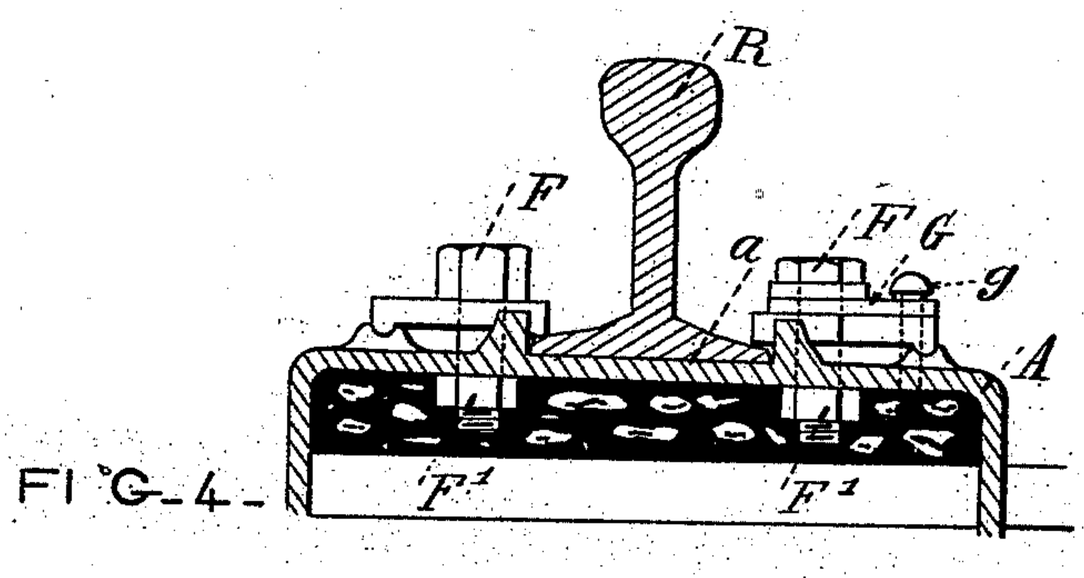


FIG. 4.

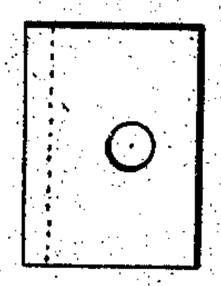
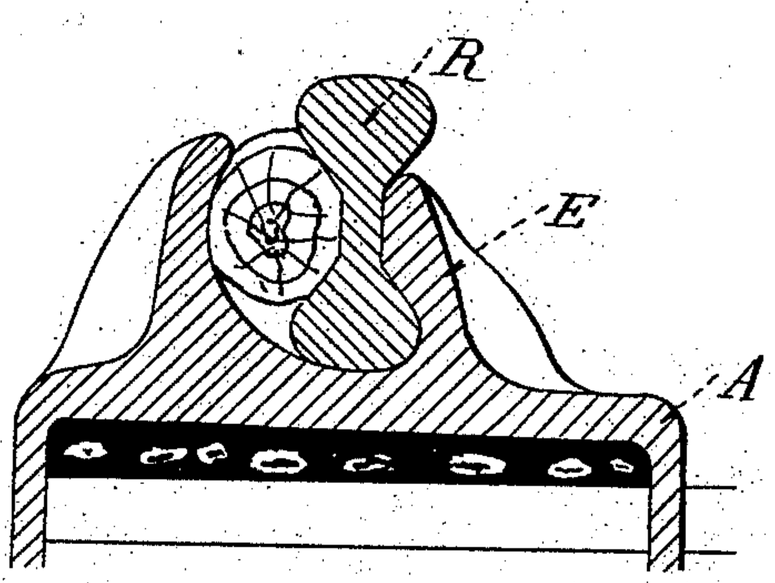


FIG. 3.



Witnesses
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C. Brand

Inventor
E. Perrody

(No Model.) 3 Sheets—Sheet 2.

E. PERRODY.

RAILWAY.

No. 505,478. Patented Sept. 26, 1893.

FIG. 5.

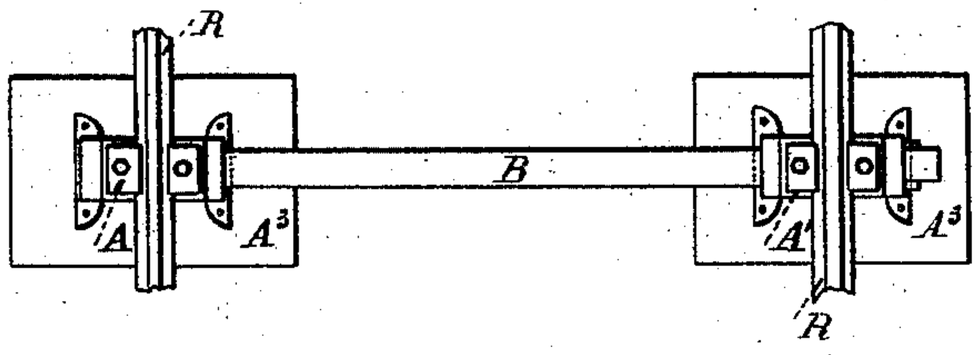


FIG. 6.

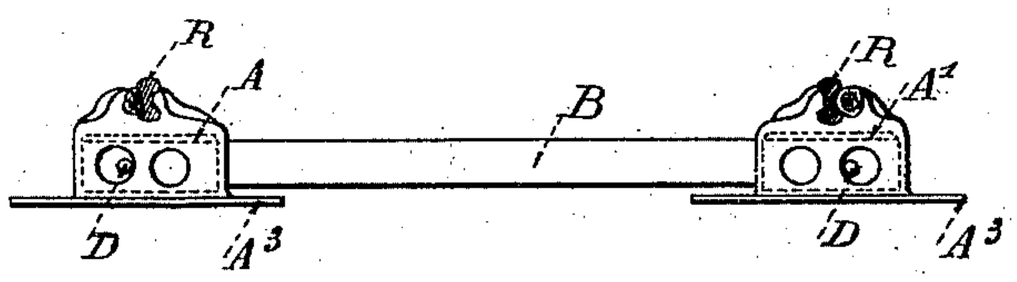


FIG. 7.

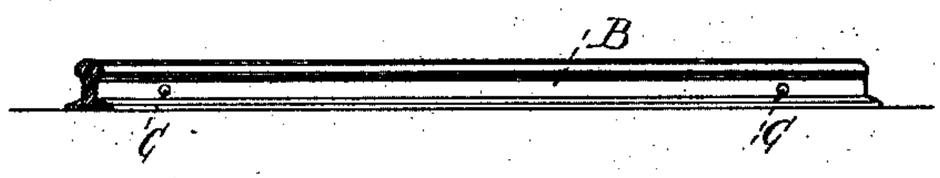


FIG. 8.

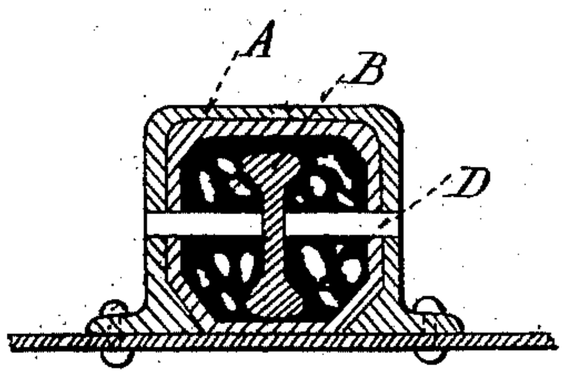
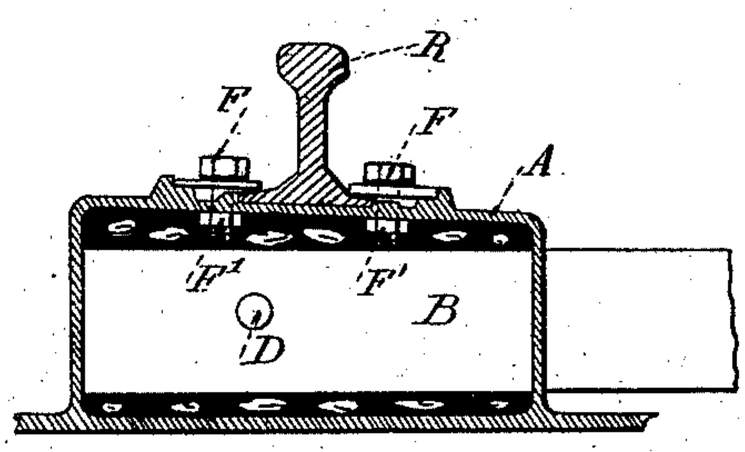


FIG. 9.



Witnesses
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(No Model.)

3 Sheets—Sheet 3.

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RAILWAY.

No. 505,478. Patented Sept. 26, 1893.

FIG_10_

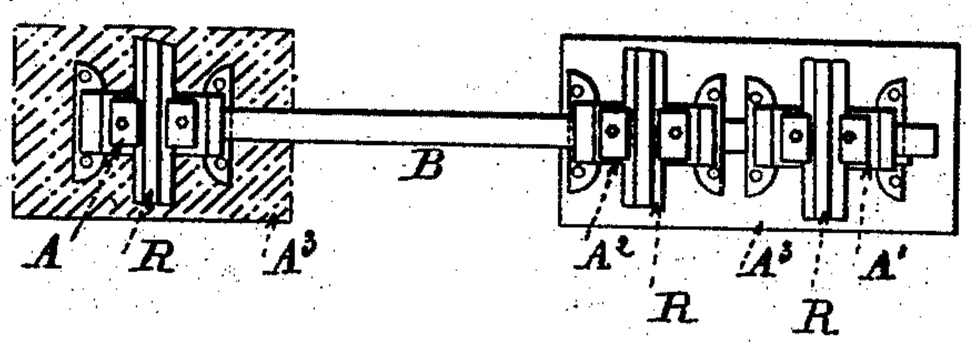


FIG_11_

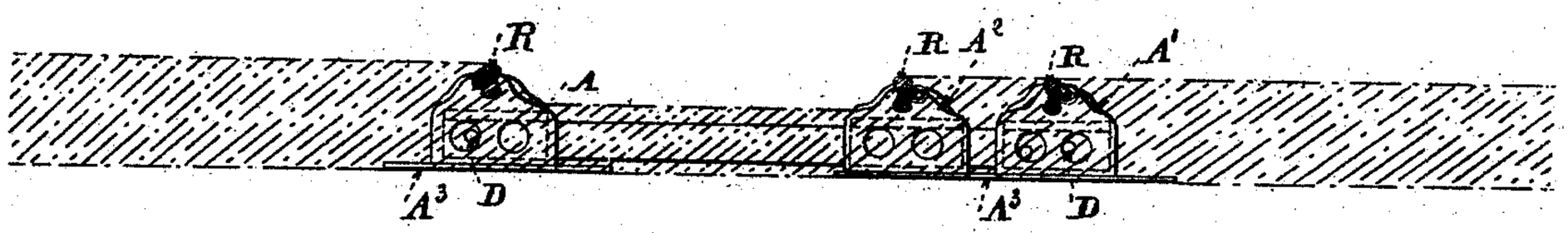


FIG_12_

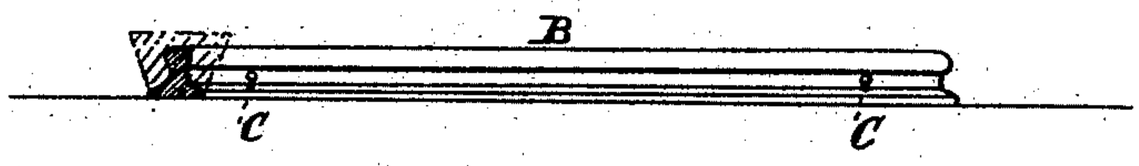


FIG_13_

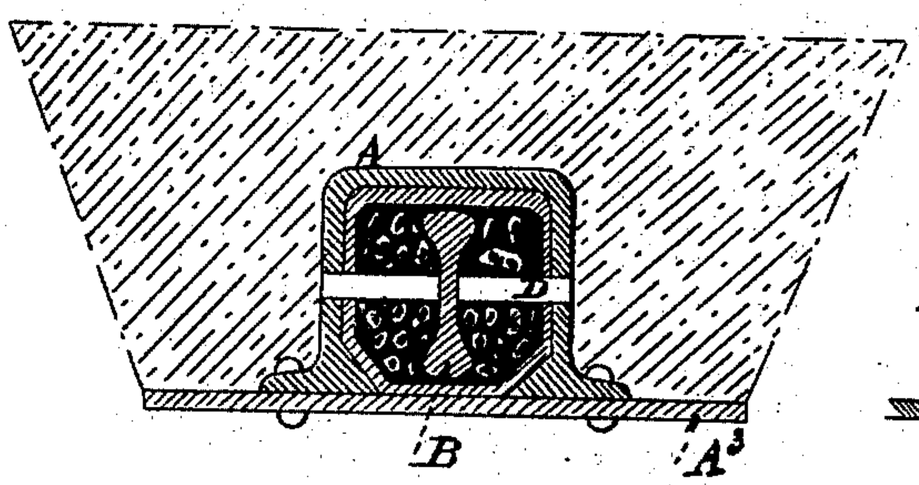
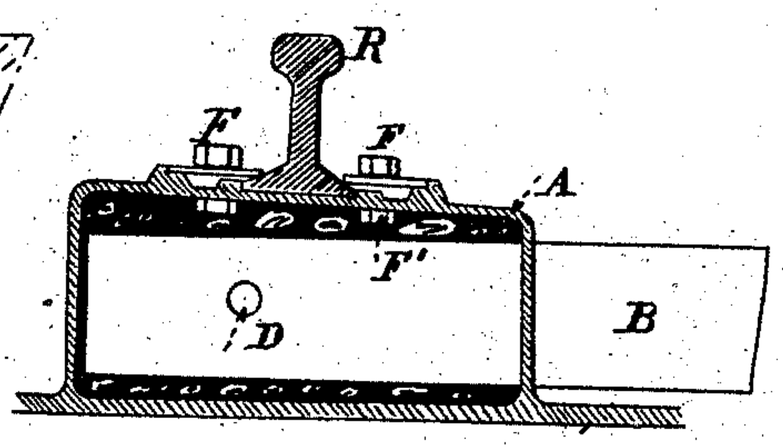


FIG_14_



Witnesses
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UNITED STATES PATENT OFFICE.

ESPRIT PERRODY, OF GENEVA, SWITZERLAND.

RAILWAY.

SPECIFICATION forming part of Letters Patent No. 505,478, dated September 26, 1893.

Application filed September 21, 1892. Serial No. 446,474. (No model.) Patented in France December 1, 1887, No. 187,583, and in Belgium February 19, 1891, No. 93,823.

To all whom it may concern:

Be it known that I, ESPRIT PERRODY, mechanic, of Geneva, Switzerland, have invented new Improvements in Broad and Narrow Gage Railways, (for which I have obtained Letters Patent in France for fifteen years, No. 187,583, dated December 1, 1887, and in Belgium, No. 93,823, dated February 19, 1891;) and I do hereby declare that the following is a full and exact description thereof, reference being made to the accompanying drawings.

This invention relates to improvements in the permanent way of railways, and includes also metal sleepers for roads having two gages.

The metallic sleeper constructed according to this invention possesses the following advantages, viz: it insures an unvarying distance between the rails constituting the road, it gives any desired inclination of the rails, the ballast remaining at the same time perfectly horizontal, it offers a resistance to sliding movement five times as great as that of the wooden sleeper, it renders it absolutely impossible for the bolts to become loose; and thus gives entire safety, it will last for a long time, and finally it offers a surface of support for the line of rails, and for each rail, twice as great as that afforded by the wooden sleeper.

The accompanying drawings illustrate in detail the improvements in question.

Figure 1 is a vertical section showing the end of a metallic sleeper, constructed to carry a rail and a point or switch. Fig. 2 is a vertical transverse section of the end of a sleeper for a single headed rail. Fig. 3 is a transverse section of the end of a sleeper for a double-headed rail. Fig. 4 shows in plan a bearing plate serving to connect the single headed rail with the sleeper. Fig. 5 shows in plan the general view of one of my sleepers for a railway with single headed rails. Fig. 6 is an elevation of the sleeper for a railway with double headed rails. Fig. 7 shows the gage or tie-bar of old railway metal which unites the two ends of the sleeper. Figs. 8 and 9 are respectively a transverse and longitudinal section of one end of the sleeper. Fig. 10 is a view in plan of a sleeper for single headed rails laid to form a road with two gages. Fig. 11 is an elevation of a sleeper for double headed rails for a road having two gages. Fig. 12 shows the gage or tie-bar. Figs. 13 and 14 are sections similar to Figs. 8 and 9 but showing the ballast in dotted lines.

My metallic sleeper is composed of two cast iron boxes A, A which are filled with concrete to resist crushing strains, and which support the rails. These boxes A, A are connected together by an old rejected rail B, which serves as a gage-bar. This bar B enters each of the boxes and its ends are plunged in the packing of cement which fills the boxes; to complete the bedding, the two ends of the bar are pierced with holes C, C into which pass bolts D, D; the heads and nuts of which forming projections are buried in the concrete and resist removal. These boxes A, A are of cast iron, steel or any other metal, rolled or cast, on which may be cast any sort of chair for the attachment of any kind of rail R. These boxes are say forty centimeters long and eighteen centimeters wide and deep, and rest on the ballast through the intervention of a wide flat iron sole A^3, about one centimeter thick, sixty centimeters long, and forty centimeters wide, which gives a surface of twenty-four square decimeters, that is to say, a bearing surface of forty-eight square decimeters for each sleeper.

For double headed rails the chair E is cast in one piece with the box on its upper surface at the desired inclination. For single headed rails a bearing surface *a* which gives the inclination is constructed on the box, which for this purpose is more raised at the outer side than at the inner side of the road.

The weight of my sleepers is for single headed rails, say, one hundred and sixty kilograms, disposed as follows, one hundred kilograms of metal and sixty kilograms of concrete. My sleeper for the double headed rail weighs, say thirty kilograms of metal more, on account of the addition of the chair. These weights are at least two thirds less for narrow gage roads of one meter width; in this case I employ as a gage-bar I-iron of seven or eight kilograms weight per meter. In my system I also make a sleeper for the joints of rails, Fig. 14, made up of a sole 1.20 meters long and sixty centimeters wide. This sleeper, which I call a triple sleeper, has two similar

soles, on each of which are arranged three boxes A A A A′ A′ A′, of cast iron, riveted or bolted to them; the middle box is intended to receive the joint of the rails, and the two other boxes to keep the rails firmly in position. The whole arrangement possesses only two ties or gage-bars B, B bedded in the concrete of the four outer boxes. This arrangement is designed to obviate completely the jolting shock given to each axletree which passes over the joints, which shock is so prejudicial to the rolling stock and the permanent way and so unpleasant to travelers. By avoidance of these shocks the locomotives are able to draw a load heavier by two-fifths than heretofore.

In my system I construct a sleeper (Figs. 10, 11, 12) made up of three boxes A A′ A^2 and of a tie or gage-bar B traversing the three blocks in one straight line. This sleeper is designed for an ordinary line and a narrow gage line together, thus allowing the rolling stock of ordinary roads to be run over narrow roads, and narrow gage and ordinary gage rolling stock to be included in the same train at any time when required, an arrangement which is specially suitable for trains for military purposes.

The bolts F, F, pass through suitable washers which rest on and confine the rail boxes in their proper positions. The nuts F′ F′ of said bolts are buried in the cement filling which prevents said nuts from turning and the bolts from loosening downward. I have devised a bolt which could not be loosened by the vibrations of the trains and yet could be easily unfastened when after a certain time it might become necessary to change the rails. However I do not claim herein the construction of such bolt and accompanying nut.

I claim as new and desire to secure by Letters Patent—

1. A metallic sleeper comprising two iron boxes for supporting the rails, said boxes filled within with concrete, a gage bar extending into said boxes and anchored within the bodies of concrete therein, substantially as set forth.

2. A metallic sleeper comprising two iron boxes for supporting the rails said boxes filled within with concrete, a gage bar extending into said boxes, and transverse bolts attached to said bar and embedded in the concrete, substantially as set forth.

3. A metallic sleeper for a double gage railroad consisting of three iron boxes for supporting the rails, said boxes filled within with concrete, a gage bar extending into the outer boxes and through the intermediate box and anchored within the bodies of concrete in said three boxes, substantially as set forth.

4. In a metallic substructure for railroad tracks, the combination of hollow iron supports for the rails filled with concrete, proper cross connections between said supports, bolts with nuts for fastening the rails to such supports, such nuts being embedded in the concrete, substantially as set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

E. PERRODY.

Witnesses:
JOSEPH LIMONEPTI,
C. BAND.