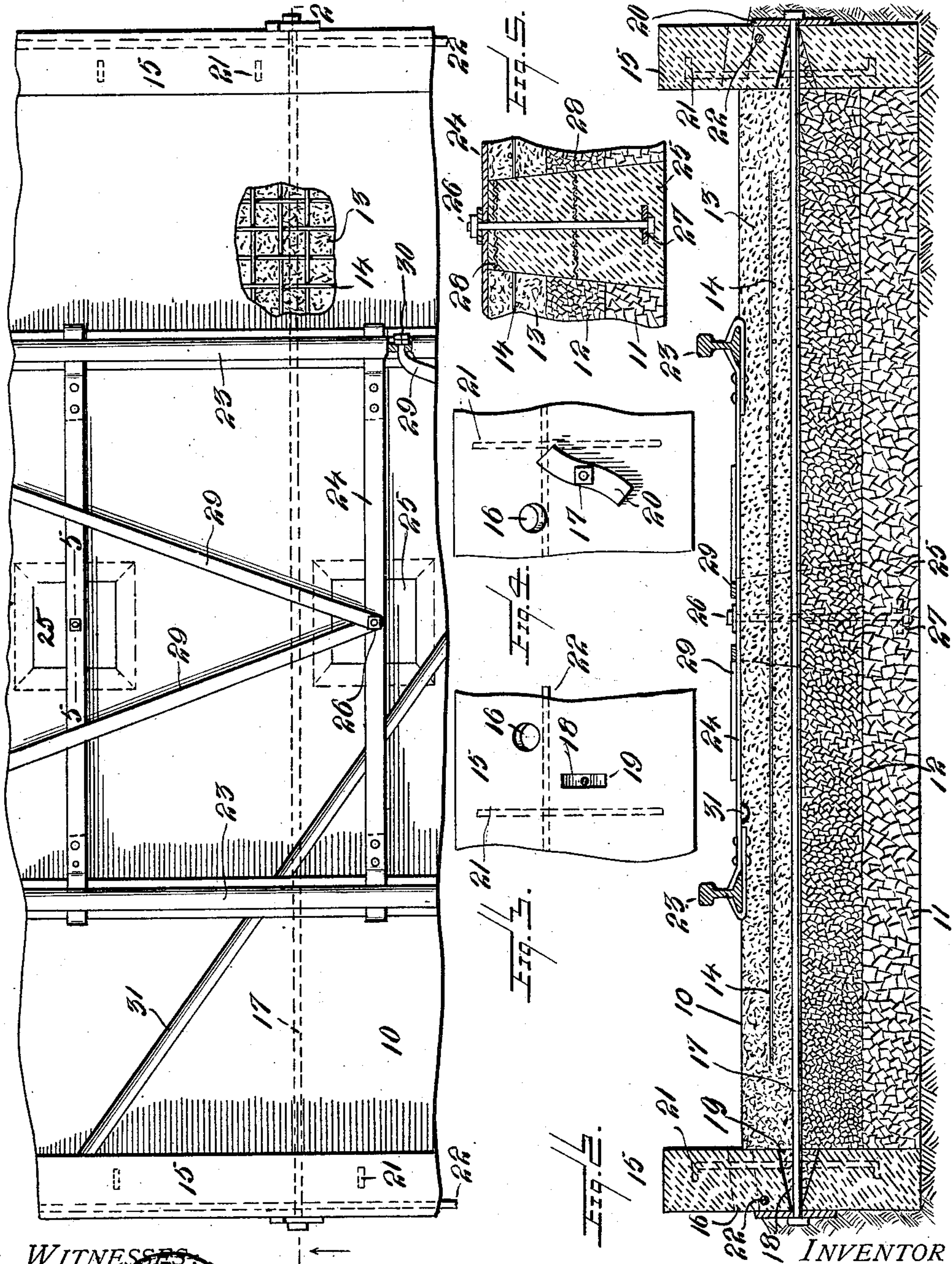


RAILWAY ROAD BED.

903,174.

Patented Nov. 10, 1908.



~~WITNESSES:~~

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RAILWAY ROAD-BED.

No. 903,174.

Specification of Letters Patent.

Patented Nov. 10, 1908.

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To all whom it may concern:

Be it known that I, WILLIAM H. COFFMAN, citizen of the United States, residing at Bluefield, county of Mercer, and State of West Virginia, have invented certain new and useful Improvements in Railway Road-Beds, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to a railway road-bed, and particularly to means for securing the rails upon the upper surface of a compact reinforced stone bed.

15 The invention has for an object to provide a novel and improved construction and arrangement of anchor secured to the connecting tie between the rails in order to prevent either lateral displacement or longitudinal creeping of the rails upon the road bed.

20 A further object of the invention is to provide an improved construction and arrangement of curb at opposite sides of the road bed with a connecting tie rod extending between said curbs.

25 Another object of the invention is to provide a compact reinforced road bed formed of crushed stone of suitable size compressed so as to form a firm foundation for the track rails having the desired elasticity and forming a continuous support beneath the entire rail length thus providing a more firm foundation therefor than can be secured upon the raised ties in ordinary use.

35 Other and further objects and advantages of the invention will be hereinafter fully set forth and the novel features thereof defined by the appended claims.

40 In the drawing:—Figure 1 is a plan with parts broken away and in section; Fig. 2 is a vertical section on line 2—2, Fig. 1; Fig. 3 is a detail elevation of the inner face of one of the curbs; Fig. 4 is a similar view of the outer face thereof; Fig. 5 is a detail section on line 5—5, Fig. 1.

45 Like numerals refer to like parts in the several views of the drawing.

50 The road bed 10 may be of any desired character, but preferably is formed by providing an excavation of suitable depth and disposing at the bottom thereof a layer of large crushed stone as indicated at 11 which may be compact by mechanical means of any desired character. Upon the top of this layer a second layer 12 of crushed stone is

disposed being of smaller size, while upon 55 the upper face of the road bed a layer of small crushed stone or crusher meal or dust 13 is disposed. This upper layer is thoroughly rolled and sprinkled with water in a proper manner after which the rolling 60 is continued until the bed fails to absorb water and is of the proper rigidity upon its upper surface. Within the layer 13 a reinforcing plate or body 14 is disposed and may be composed of steel wire fabric having 65 meshes of proper size and extending entirely beneath the tracks for the width of the road bed.

At the opposite sides of the road bed a curb 15 of cement or stone is disposed and 70 projected above the upper surface of the road bed being there provided with drain openings 16 to discharge the surface water at each side. These curbs are connected by a tie rod 17 extending through the crushed 75 stone bed and within the apertures 18 of the curbs. These apertures are substantially V-shaped being of greater width at their inner face 19 than at the outer face thereof so as to permit a play or lateral movement of the 80 tie rod without cracking or injuring the concrete curb through which they pass. The heads of these rods extend through suitable plates 20 disposed at the outer face of the curb to obtain a proper bearing thereon. 85 Each of the curbs is provided with a vertical reinforcing bar 21 as indicated by dotted lines in Fig. 2 and also with a longitudinally extending reinforcing rod 22, these being disposed at proper intervals and positions to 90 resist a strain upon the road bed. This bed may be level as shown in Fig. 2 and properly graded upon curves or may be either concave or convex as found most desirable under the conditions of use present in particular 95 cases. Upon the upper surface of the road bed the track rails 23 are disposed and rest for their entire length thereon. These rods are connected by suitable tie bars 24, the portion thereof beneath the rail being embedded 100 by pressure in the upper surface of the road bed. In order to prevent movement of the track rails upon this bed in the use thereof an anchor is provided and connected to the tie bar 24. This anchor comprises a concrete body 25 formed in a recess or excavation in the road bed, such recess being preferably of greater diameter at the bottom 105

than at the top. Embedded in this concrete is the bolt 26 having the washer 27 at its head and intermediate of the head and the upper end of the bolt-reinforcing material 5 28 is disposed preferably consisting of metallic fabric properly embedded in the concrete as the same is disposed in the excavation. The upper end of the bolt 26 extends through the tie bar and is secured thereto 10 in any desired manner. This forms a firm anchor resisting either longitudinal or lateral movement of the rails, but as a further safeguard against longitudinal creeping bracing bars 29 have been extended from the 15 anchor connection with the tie bar to the rail as shown at 30 in Fig. 1, these bracing bars being so disposed and of proper length to prevent any lateral strain on the rails while effectually resisting the longitudinal creeping action. For the purpose of draining the 20 road bed between the track rails a conducting channel or gutter 31 extends from the space intermediate the rails to a discharge opening in the curb and may be disposed 25 diagonally to the rails or otherwise as found most desirable in securing the draining function.

The operation of the invention will be apparent from the foregoing description, and 30 it will be seen that the road bed of compact reinforced crushed stone provides a firm and elastic support for the track rails economical of manufacture and capable of resisting the heaviest weight disposed thereon by railway 35 traffic. The rails are connected by tie bars so as to rest directly upon the road bed for their entire length, while the anchoring devices may be disposed at proper intervals to effectually prevent their lateral displacement 40 upon the road bed or a longitudinal creeping of the rails due either to grade or traffic thereon. The curb construction holds the road bed firmly in position and prevents scattering or spreading thereof, while the construction of aperture therethrough prevents 45 the tie bar from shearing off or injuring the curb by pressure thereon. These curbs rising above the road bed are a safeguard against ditching from derailment which may 50 result in the engine or train leaving the track and therefore are reinforced to offer the desired resistance for this purpose.

It will be obvious that the method of forming the road bed may be varied as found desirable both as to material and construction 55 thereof, while changes in the other features of construction may be effected within the scope of the claims contingent upon the topographical conditions.

60 Having described my invention and set forth its merits, what I claim and desire to secure by Letters Patent is:—

1. A railway road bed comprising a body of compact crushed stone, track rails dis- 65 posed upon the upper surface of said body

and connected by a tie bar, and a concrete anchor disposed within said body and provided with a connection to said tie bar.

2. A railway road bed comprising a body of compact crushed stone, track rails dis- 70 posed upon the upper surface of said body and connected by a tie bar, a concrete anchor disposed within said body and provided with a connection to said tie bar, and curbs disposed at opposite sides of said road bed 75 and connected by a tie rod.

3. A railway road bed comprising a body of compact crushed stone, track rails disposed upon the upper surface of said body and connected by a tie bar, a concrete anchor 80 disposed within said body and provided with a connection to said tie bar, and reinforced curbs extended above said road bed and provided with drain openings there- 85 through.

4. A railway road bed comprising a body of compact crushed stone, track rails disposed upon the upper surface of said body and connected by a tie bar, a concrete anchor 90 disposed within said body and provided with a connection to said tie bar, curbs disposed at opposite sides of said road bed and provided with apertures therethrough elongated at their inner ends, and tie rods ex- 95 tended through the apertures in said curbs.

5. A railway road bed comprising a body of compact crushed stone, track rails disposed upon the upper surface of said body and connected by a tie bar, a concrete anchor 100 disposed within said body and provided with a connection to said tie bar, curbs disposed at opposite sides of said road bed and provided with apertures therethrough elongated at their inner ends, tie rods extended 105 through the apertures in said curbs, vertically and horizontally disposed reinforcements within said curbs, and a bearing plate disposed upon the outer face of said curb through which said rods extend.

6. A railway road bed provided with a re- 110 inforced concrete anchor disposed in an excavation therein, a bolt extended upward from said anchor, track rails, and a cross tie connecting said rails and secured to said bolt. 115

7. A railway road bed provided with a re- inforced concrete anchor disposed in an ex- cavation therein, a bolt extending upward from said anchor, track rails, a cross tie con- 120 necting said rails and secured to said bolt, and brace rods extending longitudinally from said anchor bolt to said rails.

8. A railway road bed provided with an anchor therein having a connection extend- 125 ed from its upper surface, track rails having a tie bar secured to said connection, and brace rods extending from said connection to the rails.

9. A railway road bed provided with an anchor disposed in an excavation therein and 130

having a connection from its upper portion, and a brace rod extending from said connection longitudinally of the rails and connected therewith.

5 10. A railway road bed comprising a body of compact crushed stone, a reinforcing body disposed in the upper layer of said stone, track rails disposed above said reinforcing body, a tie bar connecting said rails, and an
10 anchor for said tie bar embedded in said crushed stone.

11. A railway road bed comprising a body of compact crushed stone, a reinforcing body disposed within the upper layer of said
15 stone, track rails disposed above said reinforcing body, an anchor for said rails embedded in said crushed stone, curbs at the

opposite sides of said stone bed, and a tie rod connecting said curbs.

12. A railway road bed comprising a body 20 of compact crushed stone, a reinforcing body disposed within the upper layer of said stone, track rails disposed above said reinforcing body, and curbs at the opposite sides of said stone bed and provided with 25 drain openings communicating with a gutter upon the top of the bed extending from between the track rails.

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

WILLIAM H. COFFMAN.

Witnesses:

P. D. RICE,

B. H. COOPER.