

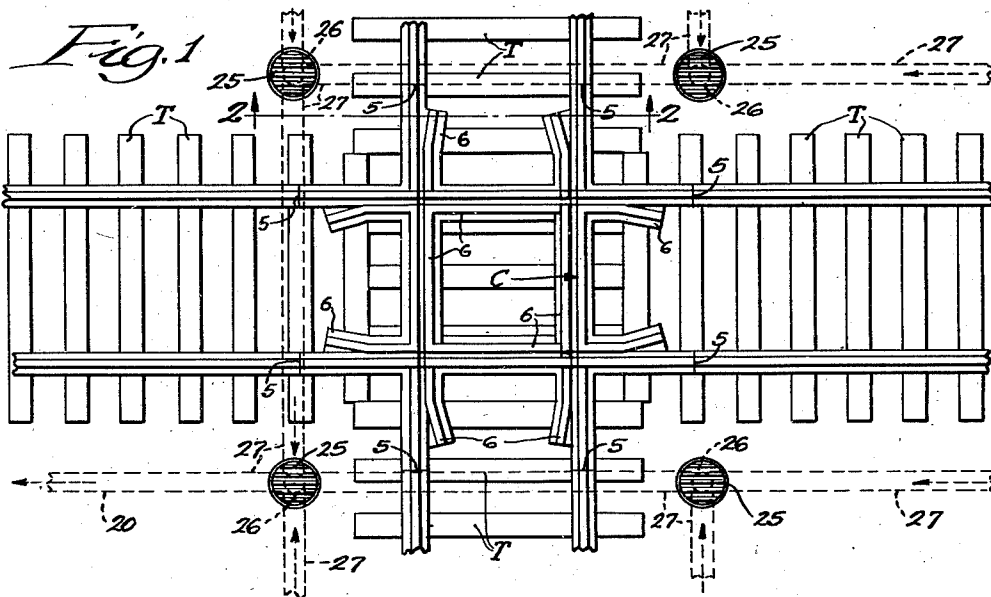
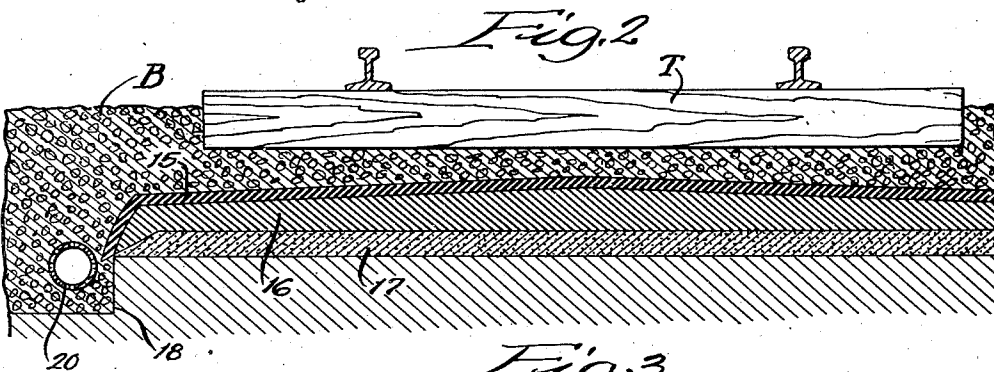
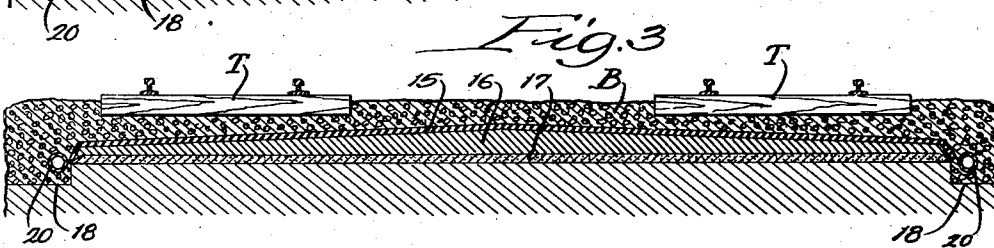
May 20, 1947.

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2,420,833

RAILWAY ROAD BED

Filed Oct. 7, 1944



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UNITED STATES PATENT OFFICE

2,420,833

RAILWAY ROADBED

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Application October 7, 1944, Serial No. 557,638

3 Claims. (Cl. 238—2)

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This invention relates to a railway road bed. In its construction I use a suitable ballast for the ties together with an underlying foundation that is slightly yieldable, and which comprises means for draining off water which otherwise would tend to collect and remain on or near the surface of the road bed. The common condition of undrained water, often referred to as a "hog wallow," is undesirable for many reasons.

The road bed of this invention possesses special utility at any or all points where railway rails are to be extended. It is particularly advantageous, however, at places which offer special difficulties, such as at crossings, switches, station platforms, etc. It is here that the problem of drainage oftentimes becomes acute.

Not only does the road bed of my invention provide adequately for the drainage of such water as may be encountered, but it also protects the foundation of the road bed, top and bottom, so as to enhance its useful life. A desirable degree of yieldability, such as is required for satisfactory operation of trains over the rails, is also provided by the foundation hereinafter to be described. Deterioration is therefore avoided both to the foundation and to the ties on the surface by reason of the means provided for adequate and ready drainage of water accumulating on the road bed.

An exemplification of my invention is set forth in the accompanying drawing, wherein:

Figure 1 is a plan view of a railway crossing laid upon a road bed which is supported upon the present foundation;

Fig. 2 is an enlarged view in transverse section, taken on line 2—2 of Fig. 1; and

Fig. 3 which is a view similar to Fig. 2 shows the present road bed in connection with a double track system.

According to Figs. 1 and 2, the rails of a single track system are carried upon cross ties T which are anchored in a bed that includes a top ballast B of crushed rock, gravel, or the like. Where the crossing C is to be placed, the rails join therewith as at 5. Guard rails 6 of any appropriate kind may be comprised in the crossing. Desirably the crossing C should be in the form of a one-piece slab for purposes of rigidity and strength, such a crossing being disclosed in my Patent No. 2,294,793 of September 1, 1942. Also a connection between the rails and the crossing, according to my Patent No. 2,274,493 of February 24, 1942, will provide special advantage due to the fact that the car wheels are not required to jump across any gap, thereby avoiding pounding

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of the rail ends when passing on to or off of the crossing.

The ballast for the rail ties is for the most part rested upon a foundation which may include an apron 15 of impervious material, such as of rubber or a rubber composition. Desirably such an apron may be fabric-reinforced for better cohesion and strength. This apron overlies a heavy slab or layer 16 of bituminous cement or the like.

The top surface of this slab, which is substantially flat, is pitched laterally so that its low point is adjacent one end of the ties beyond which it is extended. The high point may be immediately of the tie ends in the case of single rail track (see Fig. 2), or between the two sets of ties in the case of a double rail track (see Fig. 3). The sides of the slab extend downwardly and outwardly as do also the sides of the overlying apron which is pitched laterally in conformity with the top surface of the slab. The apron is also desirably downwardly extended to lie along and protect the low side of the slab.

The foundation is rested upon a mastic cushion 17, such as of sand or gravel, mixed with bitumen. Such a combination of materials will provide a mastic bond which is effective to prevent disintegration of the bottom layer and to prevent upward migration of water therethrough, thereby protecting the foundation upon its bottom.

The top ballast is extended downwardly into a channel 18 alongside one side of the apron and its underlying slab of bituminous cement. Within the ballast so disposed is extended a perforated pipe 20 which lies alongside the apron adjacent its low side. The pipe so imbedded in the ballast is supported therein in a fixed position where it will receive water which passes first downwardly through the ballast and then laterally of the apron as it drains off toward its low side. A series of perforated pipes, connected end to end, are extended lengthwise of the road bed to conduct water therethrough to a point of discharge.

As suggested in Fig. 1, at a point where a crossing is installed a plurality of manhole grille plates 25 are located adjacent the surface of the ballast, one near each corner of the intersection. Each grille plate is at the top of a vertical pipe 26 leading to the system of branch pipes 27 which are imbedded in the ballast. As by four such drainage points leading from the surface, a multiple connection is made to the drainage system which is so pitched as to lead the water entering thereinto to the main drain pipe 20 which extends to a point of discharge. The arrows shown in this

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figure indicate the general direction of flow of the water so moving through the branch pipes of the drainage system.

In practice it will be found that water which tends to stand at the surface of a railway road bed, due to special conditions such as exist where a crossing, switch or station platform is located, will readily drain through the ballast into the perforated pipe for conduction away to a point of discharge. In so doing, the foundation of the road bed is protected substantially completely from the descending and ascending water which, by reason of the impervious apron above and the impervious bottom layer below, is required to drain laterally into the perforated pipes which are comprised in the drainage system. The foundation slab of bituminous cement or the like may possess water-resistant properties to some extent, but the provision of overlying and underlying cushion layers of impervious material will afford added protection thereto. Damage to, and deterioration of, the foundation of the road bed is thereby effectively prevented so as to maintain indefinitely its capacity to yield in response to the load of passing trains.

I claim:

1. A railway road bed consisting of a ballast for supporting the ties of a railway, and a yielding foundation for the ballast comprising a top apron of impervious resilient cushion material having a lateral pitch, a heavy supporting layer of bituminous cement having a lateral pitch at the upper face fitting the apron and arranged within the same, said cement layer being provided at its lower face with a recess, and a mastic sand cushion arranged within the recess of the cement layer and forming a bottom layer and yieldable in response to the load of passing trains.

2. A railway road bed consisting of a ballast for supporting the ties of a railway, and a yielding foundation for the ballast comprising a top apron of impervious cushion material provided with the characteristics of rubber and having a lateral pitch, a heavy supporting layer of bitu-

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minous cement having a lateral pitch at the upper face fitting the apron and arranged within the same, said cement layer being provided at its lower face with a recess, and a mastic sand cushion arranged within the recess of the cement layer and forming a bottom layer and yieldable in response to the load of passing trains.

3. A railway road bed consisting of a ballast for supporting the ties of a railway, and a yielding foundation for the ballast comprising a top apron of impervious cushion material provided with the characteristics of rubber and having a lateral pitch, a heavy supporting layer of bituminous cement having a lateral pitch at the upper face fitting the apron and arranged within the same, said cement layer being provided at its lower face with a recess, and a mastic sand cushion arranged within the recess of the cement layer and forming a bottom layer and yieldable in response to the load of passing trains, said ballast on each side of the railway road bed being extended downwardly alongside of the apron, the layer of cement, and the bottom cushioning layer, and projecting below the same.

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