

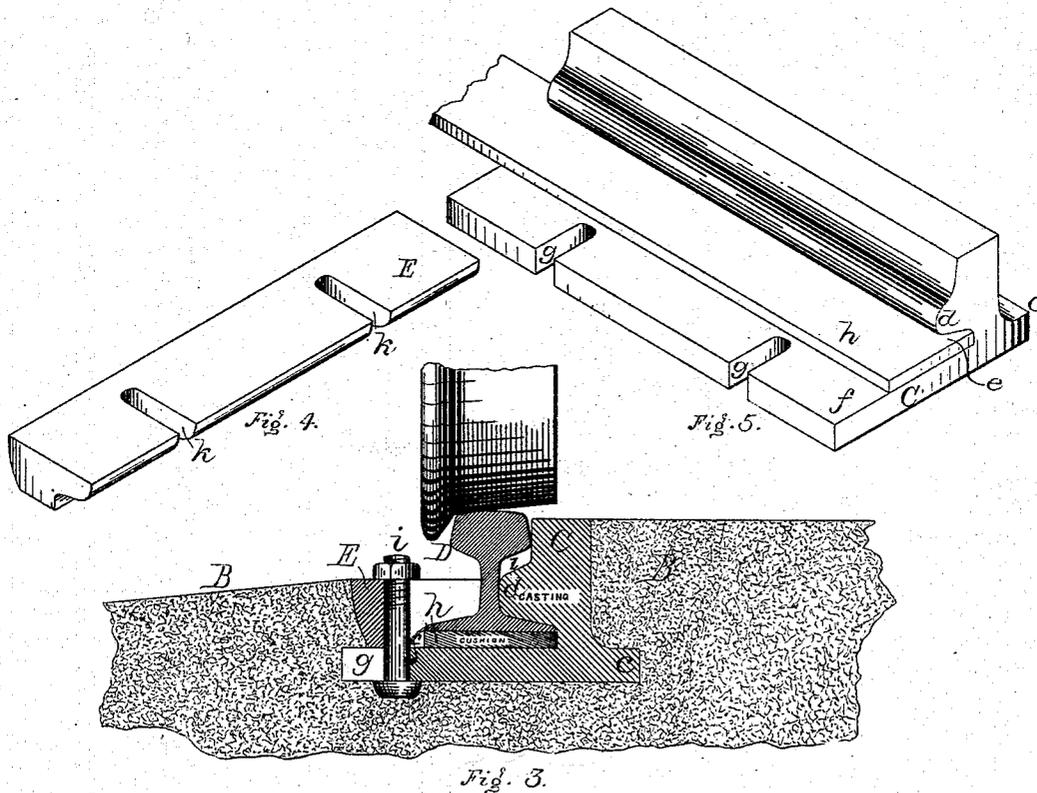
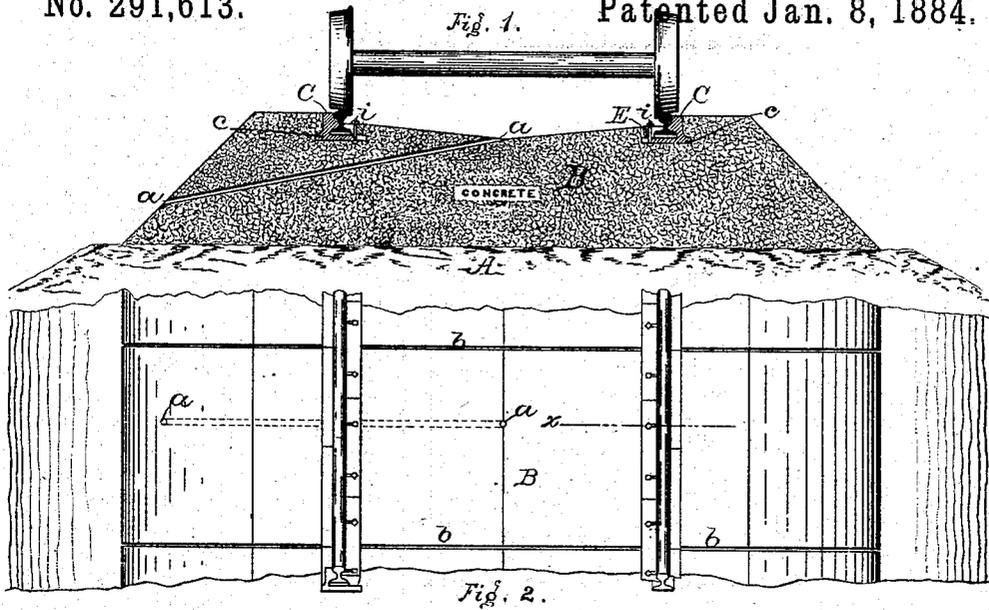
(No Model.)

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TRACK AND ROAD BED FOR RAILWAYS.

No. 291,613.

Patented Jan. 8, 1884.



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TRACK AND ROAD-BED FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 291,613, dated January 8, 1884.

Application filed October 2, 1882. (No model.)

To all whom it may concern:

Be it known that I, HARVEY C. LOWRIE, of Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Tracks and Road-Beds for Railways; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete description of the several features of my invention.

The objects sought by me are varied: first, a road-bed which involves no wood in its construction, thus providing for that impracticability of obtaining wooden ties now experienced in many localities, and which has become a general experience in view of the constant loss by decay upon old roads and the fresh demands for new roads; secondly, that economy which is involved in the durability of a road-bed containing no materials not practically indestructible by reason of exposure to the elements; thirdly, that economy which is involved in the employment of cheap metal and cheaper solid materials, so disposed as will admit of ordinary service by employing lighter steel rails than have heretofore been deemed necessary on railroads as heretofore constructed; fourthly, a practical non-liability of injury from washouts; fifthly, freedom from dust; sixthly, the practical obviation of requirement for that constant supervision and frequent application of fresh spikes and fish-plates and the resurfacing now common on railroads.

After a full description of my novel railway-track and road-bed, by the use of which the several ends aforesaid are obtained, the features deemed novel will be specified in the several claims hereunto annexed.

Referring to the drawings, Figure 1 is a vertical lateral section of my novel railway-track and road-bed. Fig. 2 is a top view of the same. Fig. 3 is an enlarged lateral section of a portion of Fig. 2 at line *x*. Fig. 4 is an enlarged perspective view of the rail-clamping plate as devised and used by me. Fig. 5 is an enlarged perspective view of the rail-chair and cushion as devised and used by me.

The earth bed A is preferably prepared, as heretofore, for the reception of ties, but graded at a proper point below actual grade, so as to provide for the reception of the novel road-

bed. The earth bed should be well settled and evenly surfaced. In some cases it is advisable to evenly surface the earth bed with a thin layer of concrete. Upon this earth bed I place solid masses of concrete, B, of suitable thickness, having inclined sides and a concave top, substantially as shown, and said masses are occasionally provided with inclined ducts *a*, extending from a point near the center of the bed outward and downward, as shown, for affording the discharge of water incident to rain-falls, which would otherwise be objectionably retained by the concave upper surface of the bed. In some cases it will be advisable that these masses of concrete be formed at some convenient point and transported for final planting. In other cases it will be practicable to form them directly upon the earth bed, in which case the use of one or more temporary supporting plates or walls will be desirable for maintaining the mass of concrete vertical at one or both of its abutting ends, and whether the concrete be thus worked or planted in blocks, seams *b* will occur between the masses, as indicated in Fig. 2, and these are preferably filled with suitable cement, so as to render the several masses of concrete practically integral, but also free to slightly expand and contract because of the seams. In many cases the concrete mass may be laid continuously and not in separate masses.

The materials employed in concrete may be varied widely, and involve the use of lime, earthy cements or asphalt, and broken rock or coarse gravel and pebbles. If a preliminary surfacing of concrete be applied to the earth bed and the masses of concrete be separately planted, it will be advisable that the said concrete surface be inclined outwardly and downwardly from a central line, and that the lower or bed surface of each mass of concrete be angularly concaved to correspond to said crowning surface of concrete on the earth bed, so as to firmly bind the masses against lateral displacement. However the concrete may be formed, there are embedded therein either a more or less continuous line of cast-iron chairs, C; or longitudinal channels may be provided in said concrete for the reception of said chairs, with such additional concrete as will suitably provide for their proper reception and enable them to be properly fixed in position. The

cast-iron chairs C have a top surface, which is or may be even with the adjacent surface of the concrete on one side, and they have a lateral flange, as at *c*, on one side, by which they are firmly locked into the concrete. Upon the opposite side to said flange said chairs have a rounded projecting web, *d*, and beneath said web a recess, *e*, and a broad flat surface, *f*, slotted inwardly from its edge, as at *g*.

Upon the chair-surface *f* a slightly-yielding cushion, *h*, is laid. This cushion is composed of felt, paper, or other sufficiently elastic or yielding material, properly treated to resist decay, as by asphaltum, the object of said cushion being to provide for a non-metallic bed for the T-rail D, thereby breaking the destructive and objectionable metallic contact which would otherwise be had between the chairs and rails. In many cases cheap, vulcanizable compounds of india-rubber, gutta-percha, balata, or other similar gums may be used to advantage. The rails are locked or confined to their bed, not only by means of the web *d* of each chair, which overlies the adjacent side of the foot of the rail, but also by means of locking-bars E and bolts *i*. Each locking-bar has a surface on one side which substantially conforms to the coincident surface of the rail below its head, and at its inner edge it is laterally slotted, as at *k*. The bolts *i* occupy the chair-slots *g*, and also the bar-slots *k*, so that when their nuts are tightened up the rail, the chair, and the bar are firmly locked together.

It will be observed in Fig. 3 that beneath the head of the rail, on its outer side, a space, *l*, is provided for between the upper surface of the chair-web *d* and the under side of the overlying head of the rail, and therefore no liability occurs of metallic supporting contact between said rail head and web incident to the settling by the rail upon its cushion. The tendency of the rails to spread is carefully guarded against by having the rail-chair, which, as clearly shown, affords a lateral support for the outer side of the rail-head, and this feature is of value, regardless of the particular character of the road-bed beneath and around the chair. The inner side of the rail-head is so far elevated above the locking-bar as to afford ample space for wheel-flanges.

It is not absolutely essential (especially on

light roads—as, for instance, the ordinary “narrow-gage”) to always employ the locking-bars, as shown, because, when not used, holes in lieu of the slots *g* in the chairs may be used, and the bolts *i* placed in position, so that the nut provided with a washer shall bear at one side upon the adjacent foot of the rail, and upon the other side bear upon a suitably-elevated portion of the chair-plate adjacent to its outer edge. In some cases the chairs C on opposite sides of the track are occasionally coupled by means of tie-bolts, (not shown,) said tie-bolts and chairs being first connected and then embedded in the concrete, and when bolts are so used they may be bent to conform substantially to the concave surface of the concrete road-bed, or they may be straight, and the concrete leveled up to cover them, while retaining between said leveled portions the concave feature.

It will be seen that the outer edge or side of the locking-bar abuts against a vertically-curved concrete surface, thus providing amply against lateral displacement of the rail.

The chairs and locking-bars may in some cases be separated at considerable intervals, if desired, and the channel in the concrete bed beneath and at the sides of the rail between the chairs firmly packed with concrete.

Having thus described my invention, I claim as new—

1. A concrete road-bed, in combination with rail-chairs embedded therein, the rails, cushions, locking-bars, and bolts, substantially as described.

2. The combination, with a concrete road-bed, of rails, rail-chairs which are embedded in the concrete beneath the rails, are engaged with a rail-head on one side, and overlie the adjacent rail-foot, and means for clamping the rail and chair, substantially as described.

3. The combination, with a T-rail, of a rail-chair having a web which overlies the foot of the rail, and a vertical surface for supporting the side of the head of the rail against lateral displacement, and a cushion interposed between the chair and rail, substantially as described.

HARVEY C. LOWRIE.

Witnesses:

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