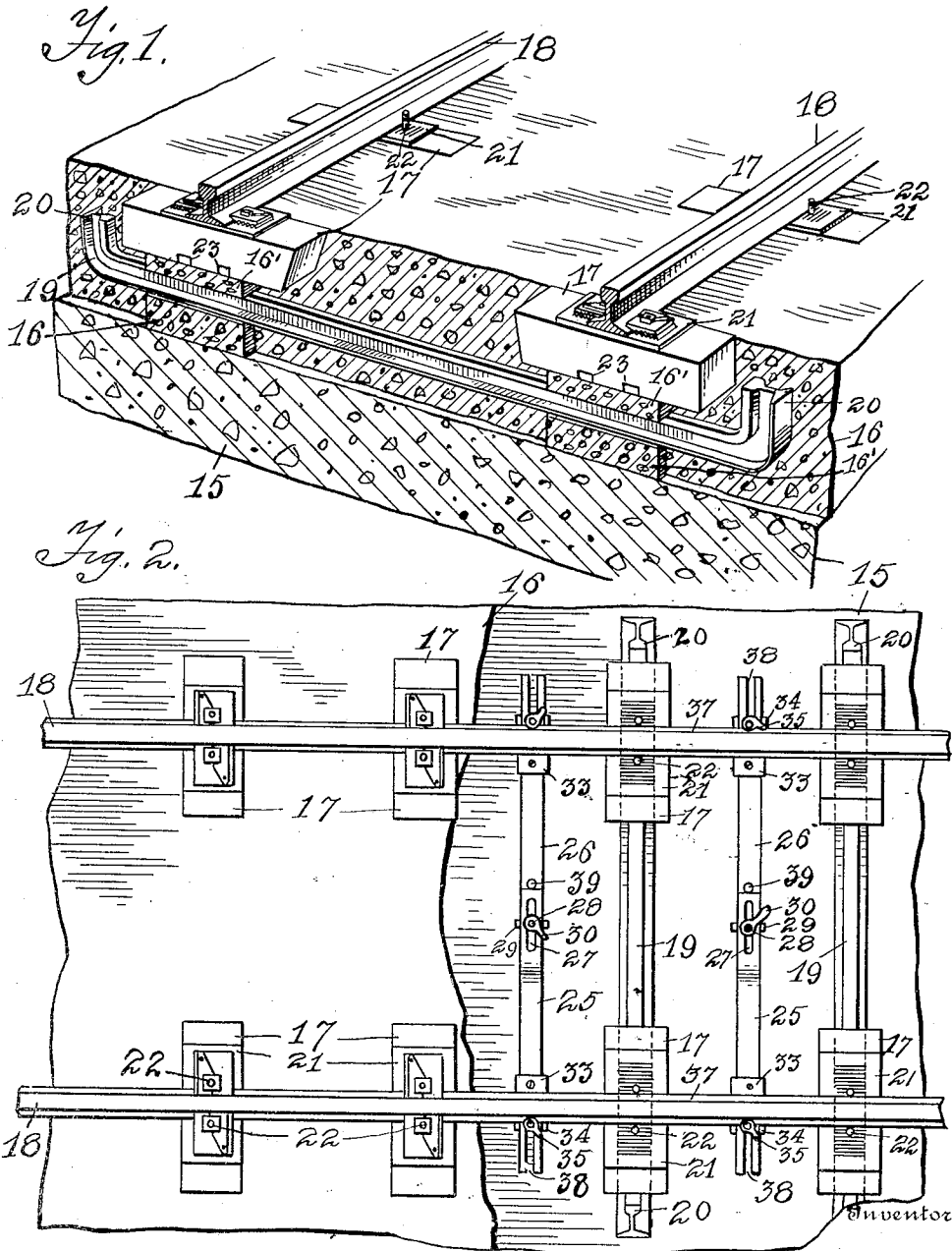


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 METHOD FOR BUILDING REINFORCED RAILWAY BEDS.
 APPLICATION FILED AUG. 8, 1919.

1,350,760.

Patented Aug. 24, 1920.

2 SHEETS—SHEET 1.



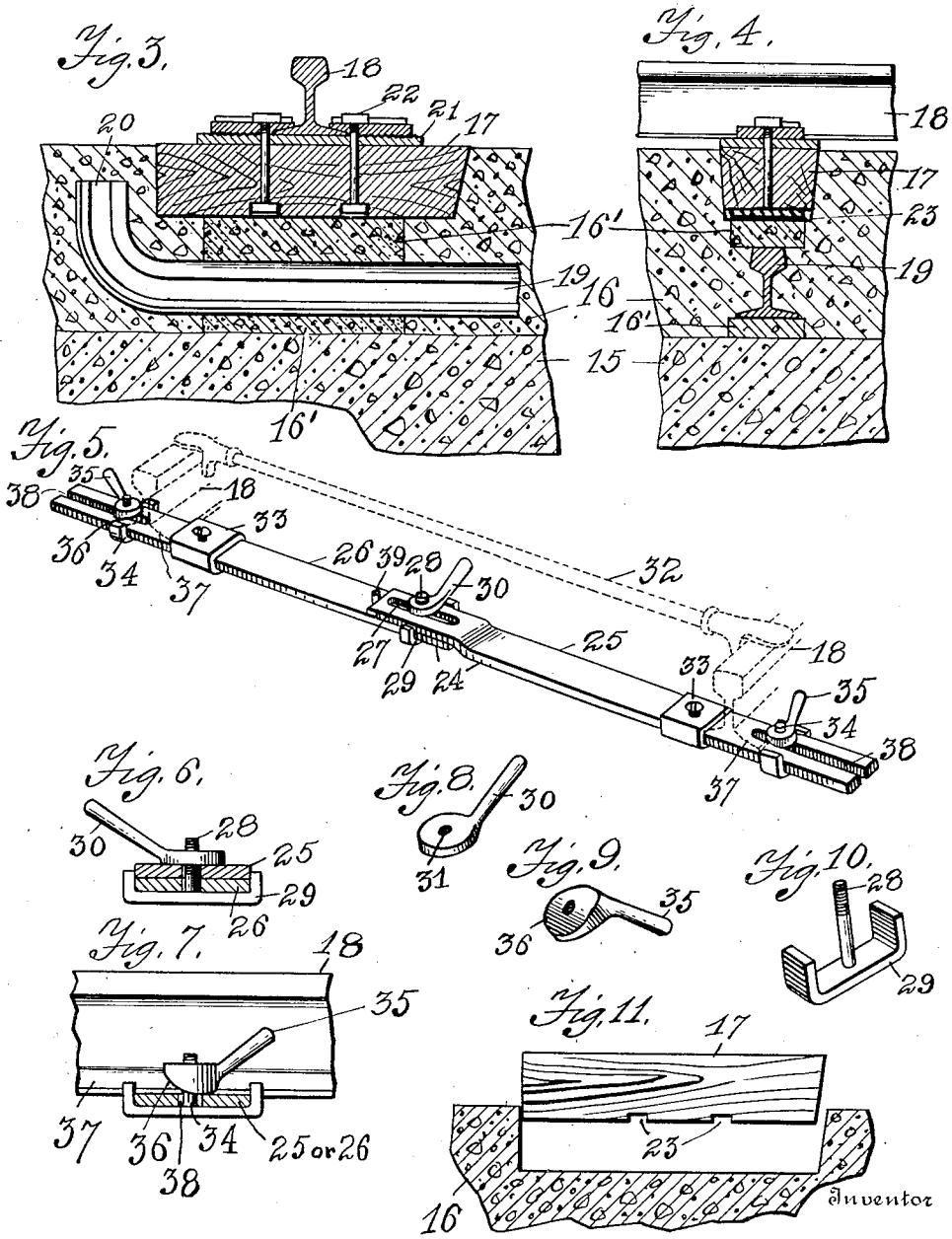
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UNITED STATES PATENT OFFICE.

LYDELL L. WILSON, OF RANDOLPH, NEW YORK.

METHOD FOR BUILDING REINFORCED RAILWAY-BEDS.

1,350,760.

Specification of Letters Patent. Patented Aug. 24, 1920.

Application filed August 8, 1919. Serial No. 316,057.

To all whom it may concern:

Be it known that I, LYDELL L. WILSON, a citizen of the United States, residing at the village of Randolph, in the county of Cattaraugus and State of New York, have invented certain new and useful Improvements in Methods for Building Reinforced Railway-Beds, of which the following, taken in connection with the accompanying drawings, is a specification.

The invention relates to building railway beds and laying the tracks thereon; and the improvement consists in providing a permanent concrete base and laying a track supporting concrete bed thereon having a series of spaced pairs of rail cushions therein preferably of wood to attach the track rails thereto, a crosswise bar or rail being embedded in the said top concrete bed beneath said rail cushions having upturned ends to hold said rail cushions from spreading, removable spacing bars being provided to hold the rails in the correctly spaced relation while said top concrete bed is being tamped into place around the rail cushions and embedded holding cross rail; and the invention consists in the novel features and combinations hereinafter set forth and claimed.

In the drawings, Figure 1 is a perspective sectional view of the double layer concrete railway bed with the embedded holding cross rail and wood rail cushions on concrete blocks, and showing the second pair of rail cushions without the rail attaching plates thereon. Fig. 2 is a top plan view of the railway track and bed in process of building showing the finished track and bed in the left portion, and on the right the rails held in correct position on the rail cushions by the removable spacing bars to receive the concrete. Fig. 3 is a lengthwise sectional elevation of the rail, rail cushion block and the attaching plates and bolts thereon, and one end of the upturned rail embedded in the top concrete bed; and Fig. 4 is a crosswise elevation of the same. Fig. 5 is a perspective view of the removable spacing bar for holding the rails in correctly spaced position while flowing and tamping in the top concrete bed, the ends of said rails and the regular top rail spacing bar being shown in dotted outline. Fig. 6 is a crosswise sectional view through the central joint of said removable spacing bar showing the manner of holding the same; and Fig. 7 is a cross-

wise sectional view of said removable spacing bar at the joint outside each rail, showing the cam shaped lever holding the flanged edge of the rail. Fig. 8 is a perspective detail of the flat faced lever for tightening the central joint of the removable spacing bar; and Fig. 9 is a perspective view of the inclined or cam shaped under side of the end locking lever for holding the edge of the outer bottom flange of the rail; and Fig. 10 is a perspective view of the screw bolt with its U-shaped head for holding both sides of the slotted holding bar to prevent turning. Fig. 11 is a sectional view of a portion of the top concrete bed showing the opening therein and an elevation of the wood rail cushion being inserted into or removed from said opening in said bed.

Like characters of reference refer to corresponding parts in the several views.

The numeral 15 designates the lower or permanent concrete bed or base for the railway track preferably ten to twelve inches thick. As is well understood, it is necessary to make the railway tracks very solid to support the extremely heavy loads now being transported over such tracks, often amounting to hundreds of tons in one train. On this account, a heavy permanent lower bed is provided which forms a rock-like ballast or foundation for the upper concrete bed 16. The upper concrete bed 16 is flowed over the lower bed 15 and tamped around the track supporting means.

The track supporting means consists of spaced rail cushion blocks 17 which are preferably made of wood and pan shaped, that is, inclined outward from the bottom upward, except the outer ends which are preferably vertical. The cushion blocks 17 are embedded in the top concrete bed 16, being first placed in position on concrete blocks 16' so that the concrete bed 16 may be tamped around the same and the track rails 18 placed thereon. In order to hold the rail cushion blocks 17 firmly in position and against endwise movement under heavy trains, particularly around curves, a strong crosswise bar, preferably a T or railway rail 19, is provided having upturned ends 20 to hold the cushion blocks 17 in position. To accomplish this the rail 19 is embedded in the concrete 16 beneath the pair of cushion blocks 17, the rail 19 and the blocks 17 being placed on hard concrete blocks 16' and held in position by tamping in a small

portion of concrete around them before the remainder of the concrete bed 16 is flowed around the same.

When the rails 18 are placed upon the cushion blocks 17, the rail supporting metallic plates 21 are placed on said cushion blocks over the upturned ends of the bolts 22, which bolts are inserted in the cushion blocks 17 before they are placed in the concrete bed 16. Said bolts 22 preferably have a long strap head which extends nearly across the block 17 in a channel or groove 23, which channel 23 prevents contact with and short circuiting of the electric current through the damp concrete bed 16 in electric roads, the channel or groove 23 embedding the crosswise head of the bolt 22 sufficiently to completely insulate the bolt and bolt head 22 by embedding it in the wood cushion block 17 out of touch with the concrete.

As soon as the wood cushion blocks 17 and crosswise holding rails 19 are placed in position on each pair of concrete blocks 16', a number of crosswise removable spacing bars 24 are provided, each of which consists of the two parts 25 and 26 attached to one another at their central joint by means of the lengthwise slot 27 and the bolt 28 with its U-shaped head 29. The head 29 is preferably insertible through the slots 27 in the lapped ends of the parts 26 and 25, though the head 29 may be strong and broad as shown in Fig. 10, if made narrow, as shown in Fig. 2, the head 29 can be inserted through slots 27 and then turned crosswise and drawn upward on each side holding the two parts firmly in alinement being drawn into said alinement in firm holding position by the lever or wrench nut 30 which is screwed on to the threaded end of the bolt 28 in the threaded opening 31. The track rails 18 are spaced correctly by means of the regular rail spacing bar 32, and the sliding adjustable sleeves 33 at each inner side of each rail are attached in position by means of suitable set screws on the parts 25 and 26 to correctly space the rails 18 when the central joint is correctly adjusted to the spacing bar 32. The rails 18 are locked in this correct position and the removable spacing bar 24 is also firmly locked in position on the rails 18 by means of similarly shaped clamping bolts 34, that is, the heads are U-shaped the same as the heads 29 of the central bolts 28, but the lever nut 35 has the cam shaped or inclined lower side 36 which may be turned up on to the top of the outer lower flanges 37 at each side thereby firmly screwing up the bolt 34 in the open ended slots 38 and firmly clamping each of the parts 25 and 26 of the removable spacing bar 24 to the rails 18.

It is apparent that as soon as the top con-

crete bed 16 is mixed and flowed around the blocks 16' and 17 and the concrete sets, the removable spacing bars 24 may be removed by the removal of the two clamping levers 35 at each end which may be loosened and slipped out through the end slots 38, and the central clamping bolt 28 may also be removed, thereby permitting the two parts 25 and 26 to be slipped from beneath the rails 18 between the rail cushion blocks 17.

The process of building the railway consists in flowing in the lower bed or concrete base 15, and when sufficiently hard, setting up thereon on the previously prepared hard concrete blocks 16' the cross rails 19 with their upturned ends 20 in position for holding the railway track therebetween. Similar hard concrete blocks 16' are placed on the three-inch top face of the rails 19 near each end to support upon each hard concrete block 16' a rail cushion block 17 in correct position with the vertical outer end a spaced distance within the upturned end 20 of cross rail 19 so that the hardened concrete between the vertical outer ends of the blocks 17 and the upturned ends 20 will hold the track rail 18 firmly against heavy sidewise train pressure, as for example on the outer side of a curve. A sufficient amount of soft concrete may be tamped around the hard concrete block 16', the cross rails 19 and cushion blocks 17 to hold the same in position for flowing the remainder of the concrete bed 16 around said parts.

As soon as the blocks 17 are correctly placed in position over the rail or bar 19, the plates 21 and the track rails 18 are placed thereon and secured in position by means of the attaching plates and bolts 22 on the bottom flange 37 each side of the rail 18. Before fastening said attaching plates and nuts 22, the removable spacing bars 24 are attached crosswise beneath the bottom flanges 37 of the rails 18 in the manner hereinbefore described except that a top spacing bar 32 is used to correctly place the tops of the rails 18. The spacing sleeve 33 is then set against the flange 37 of the rail on the part 26 and the spacing sleeve 33 on the part 25 is adjusted so that the inner end of the part 25 rests firmly against the pin or stop 39 after which the sleeve 33 is adjusted against its rail flange 37 and the central joint of the spacing bar 24 is tightened by the lever 30; the levers 35 at each side are then placed and tightened thereby firmly holding the two track rails 18 in correct parallel relation so that a light concrete car may be run onto said rails and dumped to thereby flow or tamp in the top concrete bed 16 around the cushion blocks 17, cross rails 19, and hard supporting concrete blocks 16'.

It is apparent that the top spacing bar 32 will not need to be used after the holding sleeve 33 on part 26 is once correctly spaced to the width of rail base so that the inner end of the part 25 rests against the pin 39, that is, the pin 39 and spacing sleeve 33 on the part 26 will thereafter correctly space the rails 18 so that the sleeve 33 on part 25 will slip into its correct holding position when the inner end of said part 25 is against the pin 39. As soon as the top concrete bed 16 sets so that the rails 18 and supporting cushion blocks 17 cannot be moved out of correct position, the removable spacing bars 24 may be removed as stated.

In paved city streets it is also obvious that the openings for the rail cushion blocks 17 may be made by dummy blocks which are removable as soon as the concrete bed 16 has hardened or set sufficiently to hold in due form, when the wood blocks may be removed and temporary cement blocks, each preferably made in two parts for easy removal of the same and which exactly fit said opening so that the rail cushion blocks 17 may be placed in the same, after which the street may be paved, entirely covering the inserted double series of blocks and the paving over said double series of blocks may be removed and a street railway track constructed thereon whenever desired without the exceedingly heavy expense of tearing up the concrete bed and remaking the same, it only being necessary to tear up the central portions of the top paving whether of brick, asphalt or other paving material.

I claim as new:

1. The method of building railway tracks which consists in providing a suitable concrete foundation, setting up thereon rail cushion blocks in spaced pairs and a bar under each pair of cushion blocks crosswise of the track on concrete blocks, attaching the track rails in parallel alinement on said cushion blocks, holding said rails in correct spaced alinement by removable spacing bars, and flowing the concrete around said bars and blocks to form a top railway bed on said concrete foundation.

2. The method of building a railway track which consists in providing a solid bed, setting up hard concrete blocks thereon in spaced pairs, placing cross rails having up-turned ends on said pairs of blocks, placing a second series of spaced pairs of concrete blocks on said rails, placing pairs of spaced rail cushion blocks on said second series of concrete blocks, attaching parallel track rails to said rail cushion blocks, and holding said track rails in parallel alinement by removable spacing bars to flow the concrete around said blocks and cross rails.

3. The method of building a railway track which consists in providing a solid concrete

base, supporting spaced rails crosswise of said base on concrete blocks and setting up rail cushion blocks in correspondingly spaced pairs on concrete blocks on said crosswise rails, said rails having up-turned ends each a spaced distance from the outer end of its respective cushion block, attaching the track rails on said cushion blocks adjusting said rails in correctly spaced parallel alinement by removable holding and spacing bars between each of said pairs of blocks, flowing the concrete around said crosswise rails and cushion blocks substantially to the top surface of said cushion blocks, permitting said top concrete bed to harden, and removing said removable spacing bars.

4. A rail spacing bar comprising two interlapping metal bars having slotted ends and registering lengthwise slots in the interlapping portions, holding and attaching bolts in said slots, and adjustable sleeves on said bars to hold against the inner side of each track rail.

5. In building railway tracks, a removable spacing bar comprising two parts having corresponding central lengthwise slots, a U-shaped strap headed bolt and lever nut to unite said parts through said slots, a spacing sleeve on each of said parts to adjust against the inner base flange of the rail at each side, lengthwise slotted outer ends on each of said parts, and a U-shaped strap headed bolt and lever nut with inclined head to attachingly hold said bar on the outer base flange of each rail.

6. In building railway tracks, a removable spacing bar comprising two parts which extend crosswise beneath the rails having corresponding lengthwise slots through their inner ends, a U-shaped strap headed bolt and lever nut to attach said inner ends through said slots and hold the same in alinement, an adjustable attachable sleeve on each of said parts to hold against the inner lower flanges of the rails, a projection on one of said parts to receive the inner end of the other part thereagainst when the sleeve on said part is correctly adjusted to the spacing for said rails, said parts having open ended lengthwise slots in the outer ends thereof, and U-shaped strap headed bolts and lever nuts having an inclined surface thereon to engage over the outer base flanges of said rails in holding engagement through said open ended slots to thereby attach said removable spacing bar firmly to said rails and hold them in correctly spaced alinement to one another.

In testimony whereof I have affixed my signature in the presence of two witnesses.

LYDELL L. WILSON.

Witnesses:

C. V. SWANSON,
HAROLD FORSBERG.