Jan. 13, 1925. 1,522,915

T. H. SETTLE

RAILROAD CROSSING

Filed Dec. 26, 1923

Fig. 1.

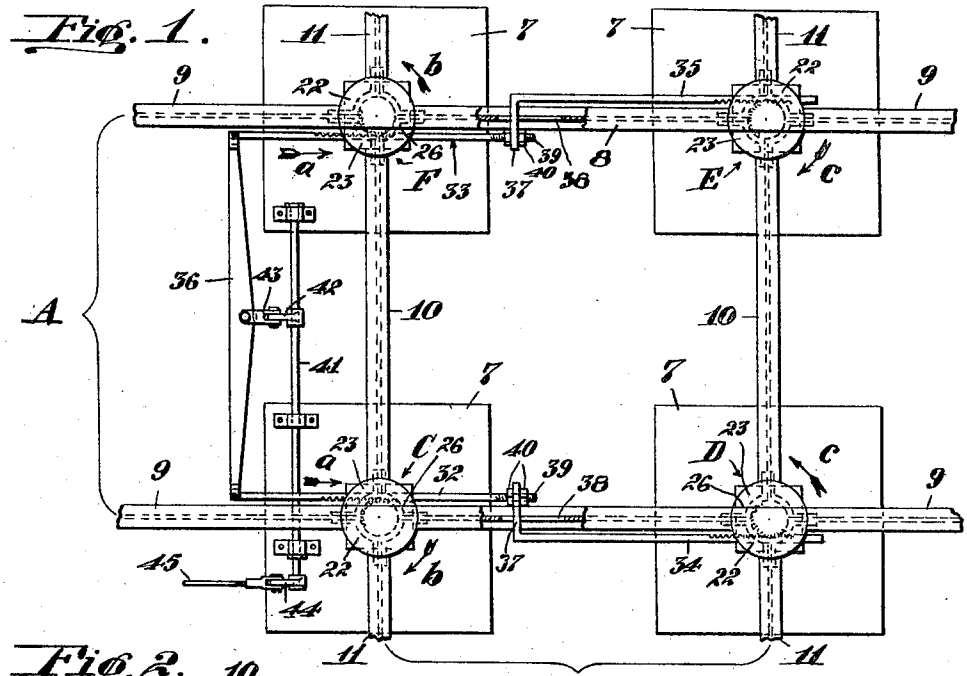


Fig. 2.

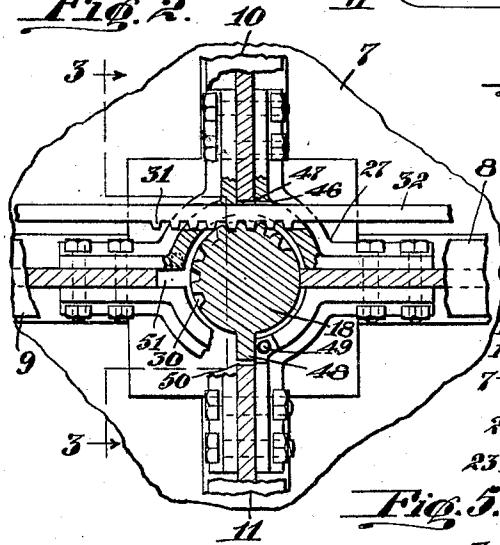


Fig. 3.

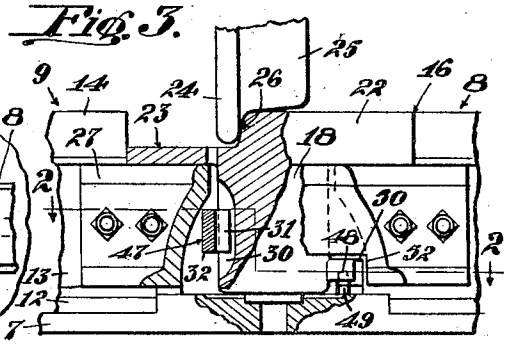


Fig. 4.

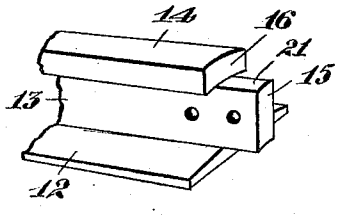


Fig. 5.

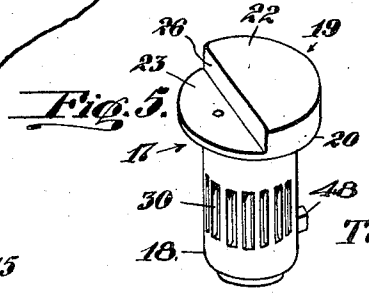
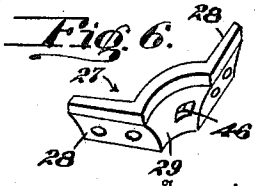


Fig. 6.



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UNITED STATES PATENT OFFICE.

THOMAS H. SETTLE, OF SAN FERNANDO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO JOHN P. MULLER, OF SAN FERNANDO, CALIFORNIA.

RAILROAD CROSSING.

Application filed December 26, 1923. Serial No. 682,649.

To all whom it may concern:

Be it known that I, THOMAS H. SETTLE, a citizen of the United States, residing at San Fernando, in the county of Los Angeles and State of California, have invented new and useful Improvements in Railroad Crossings, of which the following is a specification.

This invention relates to a rail crossing and particularly pertains to a crossing of the type in which the wheel flange gap may be closed.

An object of the invention is to provide a rail crossing in which the gap at the intersecting cross rails may be closed by a rotary block to allow the railway cars to pass across the intersection rails without the noise or jar incident to rail crossings of ordinary construction.

With the foregoing objects in view together with such other objects and advantages as may subsequently appear, my invention resides in the parts and in the construction, combination and arrangement of parts hereinafter described and claimed, and illustrated by way of example in the accompanying drawings, in which—

Figure 1 is a plan view of the rail crossing.

Figure 2 is a horizontal section as seen on the line 2—2 of Figure 3, illustrating the manner of forming the intersection of cross rails and showing the manner of operating a rotary gap-filling element.

Figure 3 is a view in section and elevation as seen on the line 3—3 of Figure 2.

Figure 4 is a detail in perspective illustrating the manner of forming the end portion of the intersecting rails.

Figure 5 is a perspective view of the gap-filling element.

Figure 6 is a perspective view of an angle plate for connecting the intersecting rails, and also affording a journal for the rotary element.

More specifically, A and B indicate railway tracks which cross each other, being spaced apart at their intersections and supported on base plates 7. The track A embodies a pair of parallel rail sections 8, constituting crossing rails which are interposed between and spaced from the end portions of adjacent rails 9, and the track B embodies parallel rail sections 10 disposed between the ends of rails 11 of the track B in alignment therewith and spaced therefrom to form gaps which coincide with the gaps between the rail sections 8 and the rails 9; there thus being a gap provided at the intersection of the rails of the track A with the rails of the track B. The rails employed are preferably of the ordinary T-cross section, that is, with base flanges 12 from which rises a vertical web 13 carrying a rail tread 14. The ends of the rail sections 8 and 10 and of the rails 9 and 11, facing the gaps at the crossing intersections, are formed substantially as shown in Figure 4, that is, with the web 13 projecting beyond the ends of the base flange 12 and the rail tread 14. The outer end face of the web 13 is formed with a transverse, concave, arcuate curvature, and the end face 16 of the rail tread 14 is also formed with a transverse, concave, arcuate curvature formed on an arc concentric with that of the end face 15 of the web; the end faces 15 and 16 of the adjacent rail sections and rails, being formed on arcs struck from a common center located on the plane of intersection of the longitudinal center of the rails. Mounted for rotation in the gap at the intersection of each of the rails is a turntable or block 17 particularly shown in Figure 5; which comprises a cylindrical stem portion 18 formed with a circular head 19 of a diameter exceeding that of the stem, to form an annular flange 20 at the juncture of the stem and head.

The stem 18 is designed to extend into the spaces between the ends of the web 13 in slidable contact with the curved end faces 15 on the latter; the flange 20 is designed to seat on the shoulder 21 formed by the projecting end portions of the webs 13; and the margin of the circular head 19 is designed to slidably conform to the curved end faces 16 of the rail treads 14. The head 19 is formed with a raised portion 22, the upper face of which extends on a plane with the top face of the rail treads, and is formed with a cutaway portion 23 adapted to accommodate the flange 24 of a car wheel 25 as shown in Figure 3; there being a transverse shoulder 26 between the raised portion 22 and the cutaway portion 23 of the head 19 formed on the line of a chord extending to one side of the axis of the block so as to form a vertical wall in continuation of one of the side faces of the rail tread 14. The block 17 is designed to be positioned so that the shoulder 26 will extend flush with the

inner faces of the rail sections 8 and the rails 9, as shown in Figure 1, and on rotation of the block one-fourth of a revolution, to extend in continuation of the inner faces of the rail sections 10 of the rails 11. The raised portion 22 thus forms a filler or bridge for the gaps between the rail sections and rails over which the car wheels may travel without noise or jar; the cutaway or recessed portions 23 permitting the flanges of the wheels to pass the rail intersections. The shoulders 20 of the blocks 17, seating on the shoulders 21 of the webs 13, afford a support for the load imposed on the blocks when the latter are traversed by the car wheels.

As a means for affording a connection between the rail intersections, angle brackets 27 are employed, which brackets are formed substantially as shown in Figure 6; being provided with end portions 28 extending at right angles to each other and connected by a curved wall 29. An angle bracket 27 is positioned in each of the four corners formed at the intersections of the rail sections 8 and rails 9 with the rail sections 10 and rails 11; the end portions 28 of the brackets being bolted to the webs 13, as particularly shown in Figure 2.

The curved walls 29 of the angle brackets are spaced from the periphery of the cylindrical stem portion of the turntable so as to afford a clearance for the passage of dirt, and as a means for facilitating removing accumulations of dirt from around the face of the turntable stem the angle brackets are formed with a curvature, as particularly shown in Figure 3. The turntables thus do not bear laterally on the angle brackets, but are guided by the four points of contact formed by the curved faces 15 on the end of the webs of the rails and rail sections.

A turntable or block 17 is provided at each intersection of the crossing as indicated at C, D, E, and F, and the stems 18 of each of the blocks are formed with peripheral teeth 30; the teeth on the stems of the turntables C and F intermeshing with rack teeth 31 on slide bars 32—33 extending longitudinally of the rails of the track A alongside the inner faces thereof; and the teeth 30 on the stems of the blocks D and E intermesh with rack teeth on slide bars 34 and 35 extending parallel with the rails of the track A and arranged alongside the outer face thereof. The slide bars 32 and 33 are connected together by a cross bar 36 and the slide bars 34 and 35 have right angled end portions 37 which project through slots 38 in the rail sections 8 and are adjustably connected to the ends of the slide bars 32 and 33, the end portions of the slide bars 32 and 33 being threaded as indicated at 39 and passed through openings in the angled ends 37 of the slide bars 34 and 35 and connected to the latter by nuts 40 which are screwed on the threaded portions 39 on opposite sides of the end portions 37. This connection between the slide bars 34 and 35 with the slide bars 32 and 33 permits of relative adjustment of the bar 34 with the bar 32 and of the bar 35 with the bar 33, which permits positioning of the several slide bars relative to each other and to the turntable blocks so that on longitudinal movement of the slide bars, corresponding movement and positioning of the turntable blocks C, D, E, and F will be effected. Movement of the slide bars may be accomplished in any desired manner, being here shown as effected by means of a rock shaft 41 extending parallel with the cross bar 36 and connected thereto by an arm 42 having a pin and slot connection with a yoke 43 on the cross bar. The rock shaft 41 is fitted with a crank 44 attached to a rod 45 leading to any suitable operating mechanism, whereby longitudinal movement may be imparted to the rod 45 to effect oscillatory movement of the rock shaft 41 and thereby reciprocate the rack bars 32, 33, 34 and 35 in unison. In order to accommodate the slide bars, the angle brackets 27 are formed with openings 46 as shown in Figure 6, through which the slide bars extend, as shown in Figure 2, and the end face of the web 13 is recessed, as indicated at 47, opposite the openings 46; thus providing a bearing and guideway for each slide bar.

As a means for limiting movement of the turntable blocks 19 to one-fourth of a revolution, the lower end portions of the stems 18 of the blocks are formed with a projection 48, which is adapted to abut against suitable stops 49 on the base plate, there being spaces 50 and 51 in the projecting end portions of the webs 13 of adjacent rails, such as the rails 9 and 11 as shown in Figure 2, or the rail sections 8 and 10, so that the projections 48 will pass into the spaces 50 and 51 and abut against the stops 49; the bracket above the path of travel of the projection 48 being cut away as indicated at 52 in Figure 3 to accommodate movement of the projection 48. The projection 48 with its cooperating stops, serves to limit the turning movement of the block to one-fourth of a revolution, and insures proper alignment of the shoulder 26 with the inner faces of the rails and rail sections.

The turntable blocks C, D, E, and F are disposed so that the recessed portions and shoulders 26 will extend along the inner sides of the rails of the track A and the teeth on the opposite blocks C and F on one of the rails of the track B are disposed to face interiorly toward each other to engage the slide bars 32 and 33 disposed between the rails of the track A, while the teeth on the turntable blocks D and F on the other rail of the track B, face in opposite direc-

tions outwardly from the rails of the track A to engage the slide bars arranged alongside of the outer faces of the rail sections 8 of the track A. By this arrangement the longitudinal movement of the slide bars in the direction indicated by the arrows *a* in Figure 1, will rotate the turntable blocks C and F one-fourth of a revolution in opposite directions as indicated by the arrows *b*; and the movement of the slide bars 34 and 35 in the same direction will rotate the turntable blocks D and F one-fourth of a revolution in opposite directions with the block D turning in a direction opposite that of the block C and with the block E turning in a direction opposite that of the block F as indicated by the arrows *c*. By thus turning the blocks C, D, E, and F one-fourth of a revolution, the recessed portions thereof will be positioned to extend transversely of the rail sections of the track A, with the shoulders 26 extending in alignment with the inner faces of the rail sections and rails of the track B. In this manner the raised portions 22 of the blocks will serve to bridge the gaps at the rail intersections of either the track A or the track B.

The operation of the invention is apparent from the foregoing.

I claim—

1. In a railway crossing, a rail and a rail section spaced apart to form a gap, a second rail and rail section extending transversely of the first named rail and rail section spaced apart to form a gap coinciding with the first named gap, a rotary block arranged in said gap and supported on the adjacent rail and rail section ends, said rotary block having a head formed with a raised portion and a recessed portion, said raised portion serving to bridge the gap between either of the rails and rail sections, said rotary block embodying a stem having peripheral teeth, and a slide bar having rack teeth intermeshing with the teeth on said block operable on reciprocation of said slide bar to effect rotary movement of said block.

2. In a railway crossing, a rail and a rail section spaced apart to form a gap, a second rail and rail section extending transversely of the first named rail and rail section spaced apart to form a gap coinciding with the first named gap, a rotary block arranged in said gap and supported on the adjacent rail and rail section ends, said rotary block having a head formed with a raised portion and a recessed portion, said raised portion serving to bridge the gap between either of the rails and rail sections, said rotary block embodying a stem having peripheral teeth, a slide bar having rack teeth intermeshing with the teeth on said block operable on reciprocation of said slide bar to effect rotary movement of said block, and means on said block for limiting the rotation of said block to one-fourth of a revolution.

3. In a railway crossing, a rail and a rail section spaced apart to form a gap, a second rail and rail section extending transversely of the first named rail and rail section spaced apart to form a gap coinciding with the first named gap, the ends of each of said rails and section rails cut away to form a bearing, and a rotary block supported on said bearings and adapted to bridge said gap.

4. In a railway crossing, a rail and a rail section spaced apart in longitudinal alignment to form a gap, a second rail and rail section spaced apart to form a gap, said rails and rail sections being arranged so that the gaps therebetween will coincide, the end portions of said rails and rail sections adjacent the gap being cut away at their treads to form horizontal shoulders, a rotary block having a flange slidably seated on said shoulders and formed with a stem projecting into the gap, angle brackets connecting adjacent rails and rail sections, said rails and rail sections having curved end walls forming a journal for said stem, said block formed with a raised portion and a recessed portion, said raised portion serving to form a bridge between aligned rails and rail sections, and said recessed portion forming a wheel flange slot, and means for turning said block a partial revolution whereby the raised portion may be positioned to bridge a gap between either of the rails and its aligned rail section.

5. In a railway crossing, a pair of rails, a second pair of rails crossing the first named rails, there being gaps at the point of intersection of said pairs of rails arranged at the four corners of a rectangle, turnable members in said gaps formed with raised portions to bridge the gaps between either of a pair of rails, teeth on each of said turnable members, a pair of connected slide bars having teeth engaging the teeth on a pair of said turnable members, a second pair of slide bars adjustably connected to the first named slide bars having teeth engaging the teeth on the other pair of turnable members, said slide bars and turnable members being arranged so that on reciprocation of the slide bars rotation of all of the turnable members will be effected simultaneously.

6. In a railway crossing, a pair of rails, a second pair of rails crossing the first named rails, there being gaps at the point of intersection of said pairs of rails arranged at the four corners of a rectangle, turnable members in said gaps formed with raised portions to bridge the gaps between either of a pair of rails, teeth on each of said turnable members, a pair of connected

slide bars having teeth engaging the teeth on a pair of said turnable members, a second pair of slide bars adjustably connected to the first named slide bars having teeth engaging the teeth on the other pair of turnable members, said slide bars and turnable members being arranged so that on reciprocation of the slide bars rotation of all of the turnable members will be effected simultaneously, and means for limiting the rotation of said turnable members in either direction.

THOMAS H. SETTLE.