Dec. 30, 1924. 1,521,513

C. R. EDLUND

CONTINUOUS RAIL CROSSING

Filed April 8, 1924

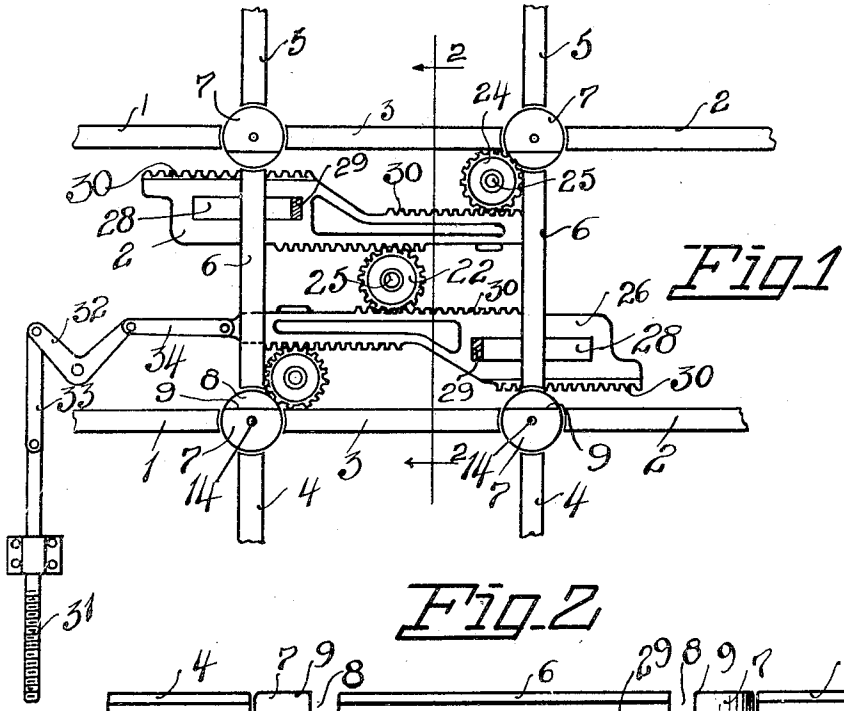


Fig 1

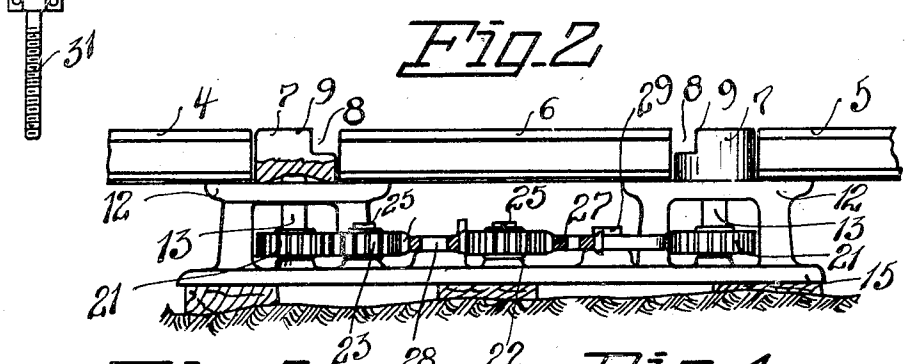


Fig 2

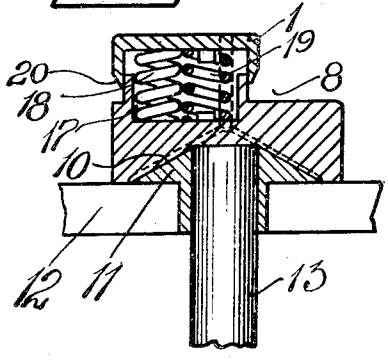


Fig 3

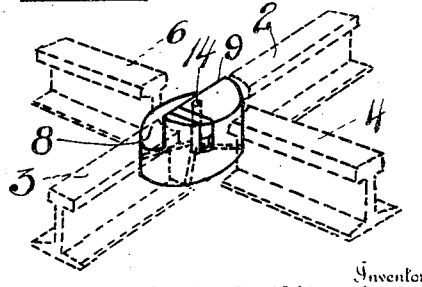


Fig 4

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Patented Dec. 30, 1924.

1,521,513

UNITED STATES PATENT OFFICE.

CARL R. EDLUND, OF SPOKANE, WASHINGTON.

CONTINUOUS-RAIL CROSSING.

Application filed April 8, 1924. Serial No. 704,936.

To all whom it may concern:

Be it known that I, CARL R. EDLUND, a citizen of the United States, residing at Spokane, in Spokane County, and State of Washington, have invented certain new and useful Improvements in Continuous-Rail Crossings, of which the following is a specification.

My present invention relates to improvements in continuous rail crossings for use at intersections of street railway or steam railroad, the primary object of the invention being the provision of means for maintaining substantially continuous tracks or track rails for the passage of rolling stock, and thus eliminate wear at the ends of the continuous rails of a track.

By the utilization of my invention the objectionable noise of rolling stock passing over jointed rails is avoided to a great extent and durability is increased thus reducing the expense of maintenance of the crossing.

The invention is especially adapted for use in connection with railways employing visible signals or warnings, and is capable of use jointly with the operating mechanism of the signal system.

The invention consists in certain novel combinations and arrangements of parts including rotary blocks or tread members and actuating means therefor as will hereinafter be more fully pointed out and claimed.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention wherein the parts are combined and arranged in accordance with the best mode I have thus far devised for the practical application of the principles of my invention.

Figure 1 is a diagrammatic plan view of the appliance and connections at the intersection of two railways.

Figure 2 is an enlarged, transverse sectional view as at line 2—2 of Figure 1.

Figure 3 is a vertical sectional view of one of the rotary heads or blocks.

Figure 4 is a perspective view showing one of the rotary heads and the intersecting rails in dotted lines.

In the preferred form of my invention as illustrated in the drawings and particularly in Fig. 1 the rails of one track are designated 1 and 2 with the intermediate rail 3, and the rails of the intersecting track are designated 4 and 5 with the intermediate rail section 6.

At the four intersections of the crossing are located rotary heads designated as a whole by the numeral 7, each of which is fashioned with a cut away or grooved portion 8 to form a tread 9 which is adapted to be alined with the main track rails for the passage of rolling stock. The contiguous ends of the track rails terminate at the rounded periphery of the rotary heads, and as indicated in Figure 1 the track running east and west is made continuous by the interposition of the rotary heads with their treads 9 in alinement with the track rails. The four rotary heads are adapted for alternate us in pairs with the intersecting tracks, and the diagonally disposed pairs of heads are designed to rotate in unison as indicated by the arrows in Figure 1.

The rotary heads or blocks are of complementary construction, and each is fashioned with a conical socket 10 at its underside that is adapted to seat and turn upon a conical bearing head 11 which latter head is fashioned upon a chair casting 12 located below and adapted to support the contiguous ends of the track rails.

Each head is fashioned with a depending, rigid shank 13 which is journaled in the bearing head 11 and adapted to revolve with the rotary head. The conical bearing faces of the rotary head and bearing head insure a correct and proper location of the rotary head, provide for a wide area of support for the rotary head and insure a minimum of wear between the two friction faces in addition to maintaining the rotary head in proper horizontal position between the ends of contiguous rails.

For lubricating these friction surfaces between the rotary head and its bearing head an oil hole 14 is provided through which the parts may be lubricated as required.

The chairs 12, four in number may be formed integral with a base plate 15 located in a suitable pit beneath the crossing and the parts are secured in usual or suitable manner against displacement.

As an emergency device adapted for use in case the rotary heads are not properly aligned with the track over which traffic is to pass, I utilize a depressible cap 16 on

the heads, which is held in normal position by means of springs 18 and 19 within the cup portion 17 of the head.

To prevent obstruction to the depressing movement of the cap by accumulation of dust, snow or ice on the cup walls of the rotary head, the lower edge of the cap is beveled as at 20 in order that this edge may cut through and separate the obstruction from the cup to permit movement of the cap. Should the wheels of a passing train strike the cap it will be apparent that the cap is depressed thereby thus avoiding any obstruction to the passing wheels.

As indicated in the drawings the four rotary heads are turned simultaneously in the direction of the arrows, and each shank 13 is provided with a horizontally disposed rack wheel 21 below which wheel the shank is journaled in the base plate 15. At the center of the pit and in horizontal alinement with the four wheels 21 a similar wheel 22 is located and which is alined with a pair of intermediate wheels 23 and 24, the latter meshing with the driven wheels of the rotary heads. These three rack wheels 22, 23 and 24 are journaled on stud shafts 25 projecting upwardly from the base plate, and are located in the same horizontal plane with the four driven rack wheels.

For imparting the required rotary movement to the several wheels, duplex, oppositely disposed and parallel rack plates 26 and 27 are utilized, said plates being disposed equidistant from the center of the crossing and each provided with a guide slot as 28. The plates are adapted to slide in opposite directions and are guided by means of the stationary lugs 29 of the base plate that project upwardly through the slots 28.

The two slide rack-plates are each fashioned with three sets of rack teeth each indicated by the numeral 30 and the rack teeth as shown are arranged in a complementary pair to engage the central wheel 22, a second complementary pair engage the intermediate wheels 23 and 24 and a third complementary pair engage the two diagonally disposed rack wheels 21 of two rotary heads 7. Thus it will be apparent that when the rack plate 26 for instance is moved longitudinally in the direction of the arrow in Fig. 1 the coacting rack wheels and rack teeth will impart a rotary movement to the rotary heads to turn them in pairs as indicated by the arrows.

For operating the slide plate 26 a draw bar 31 is employed which is actuated by suitable power, as from a signal mechanism or a switch mechanism. This draw bar is connected to a bell crank lever 32 by a link 33 and the other arm of the lever is connected to the slide plate 26 by a similar link 34.

The draw rod 31 as before indicated may be connected with signal operating mechanism in order that the rotary heads of the continuous crossing may be controlled in connection with the signal mechanism. The rotary heads are positively turned in either of two directions to bring their treads 9 in alinement with the selected track rails, and of course the treads 9 of the heads are turned parallel with the direction of travel of an approaching train.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is—

1. In a continuous railway crossing the combination with four diagonally disposed rotary heads each having a rack wheel, a central rack wheel and a pair of intermediate wheels, of a pair of oppositely movable plates each having three sets of rack teeth for co-action with said rack wheels, and means for operating one of said plates.

2. In a continuous railway crossing the combination with four rotary heads each having a rack wheel, a central rack wheel and a pair of intermediate rack wheels, of a pair of slotted, parallel plates and fixed guide lugs therefor, each of said plates having three sets of rack teeth for co-action with said rack wheels, and means for moving said plates in opposite directions.

3. The combination with a rotary head having a conical lower face and rigid shank, of a bearing head having a complementary conical face and supporting said shank, a cup on the upper portion of the head, a cap on the cup, and a spring interposed between said cap and cup.

In testimony whereof I affix my signature.

CARL R. EDLUND.