Sept. 24, 1929. E. L. FAIRBANKS 1,729,098

RAIL CROSSING

Filed Jan. 17, 1928 4 Sheets-Sheet 1

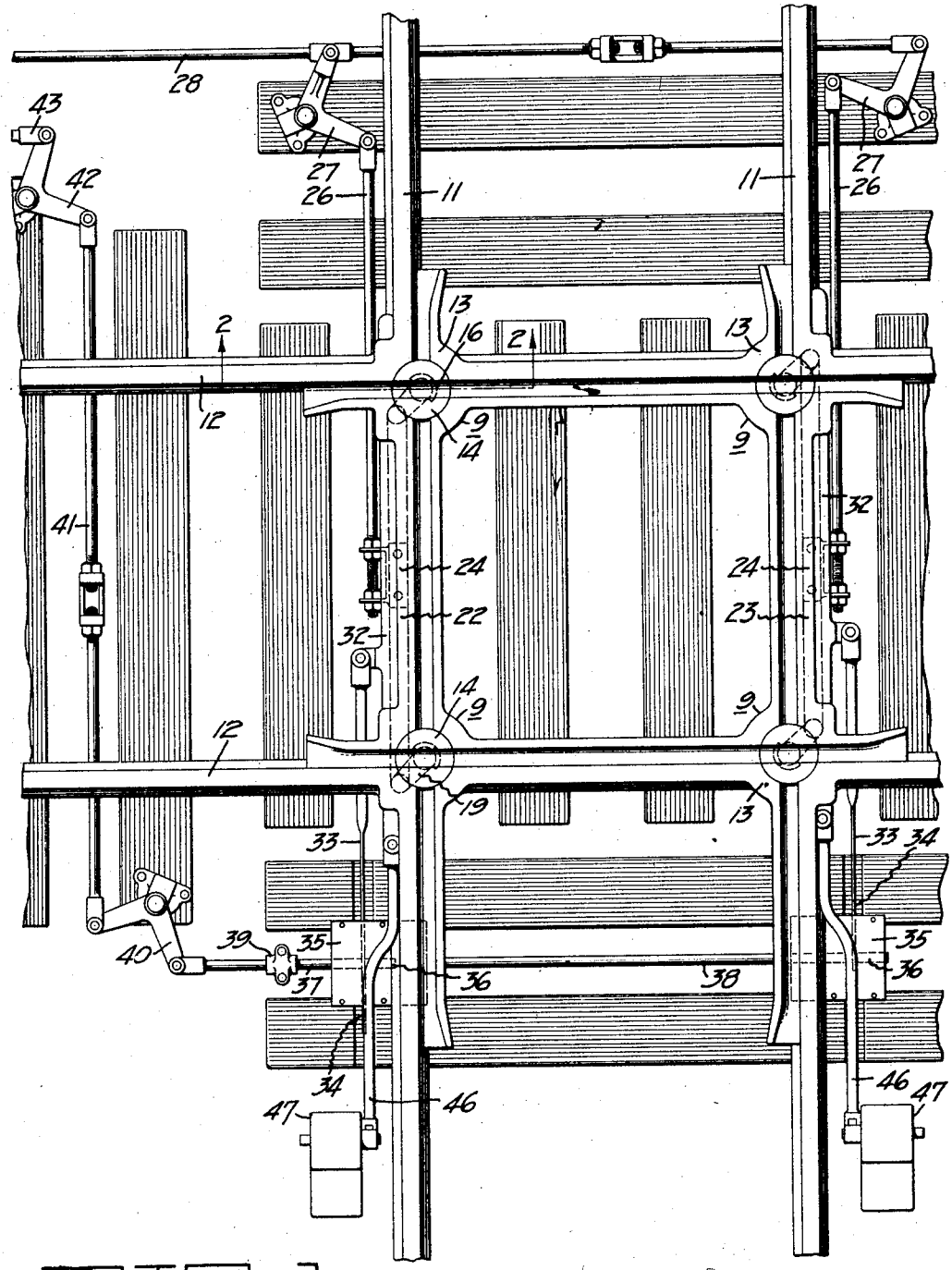


FIG. 1.

INVENTOR
Edward L. Fairbanks
BY White, Prost & Fryer
ATTORNEYS

Sept. 24, 1929. E. L. FAIRBANKS 1,729,098

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FIG. 2.

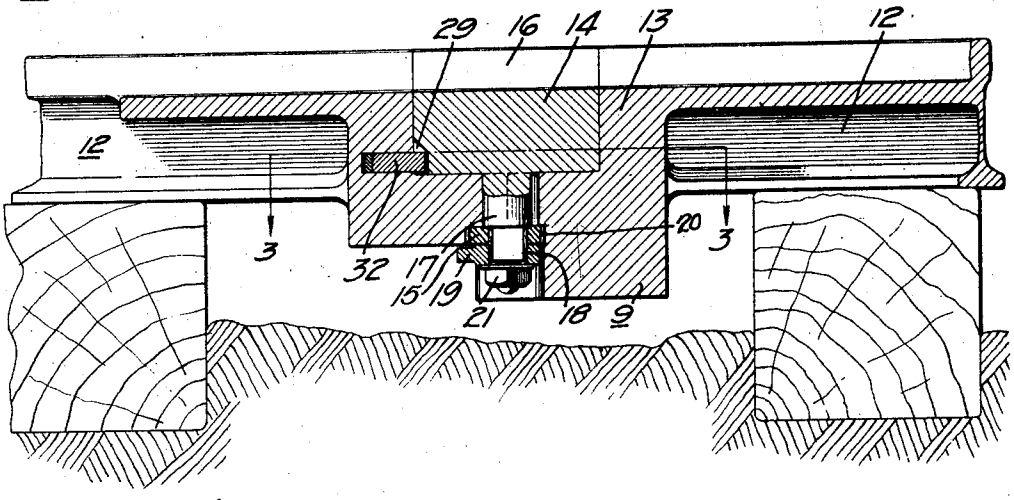
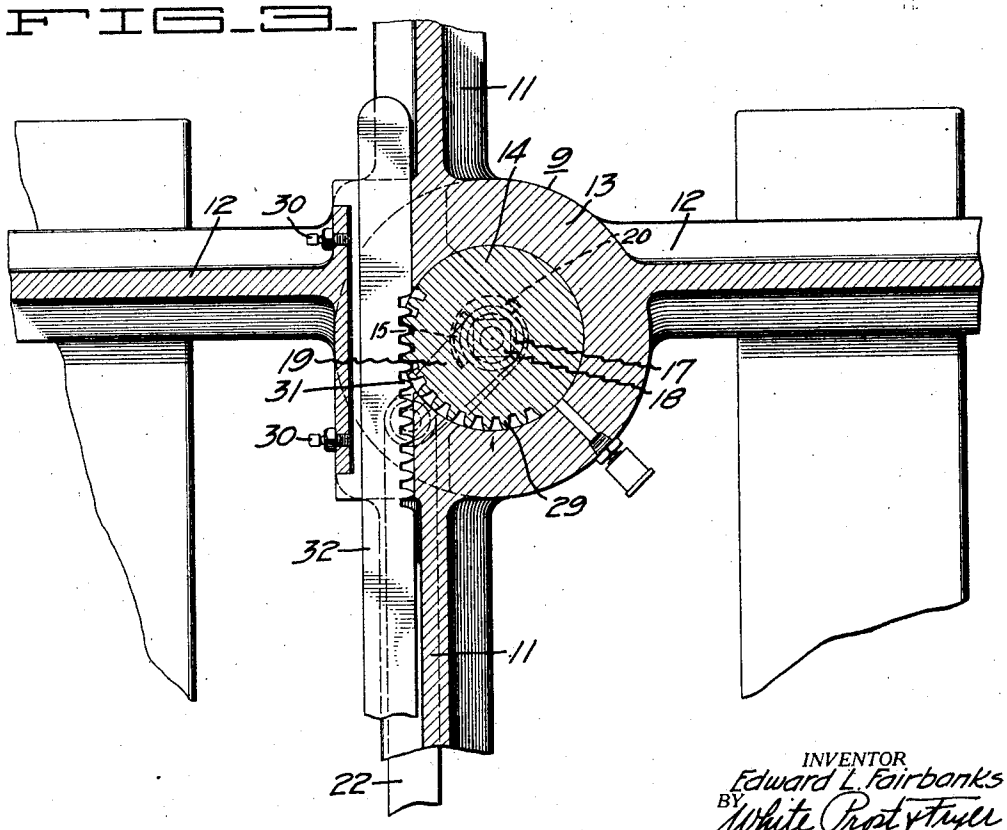


FIG. 3.



INVENTOR
Edward L. Fairbanks
BY
White, Prost & Fryer
ATTORNEYS

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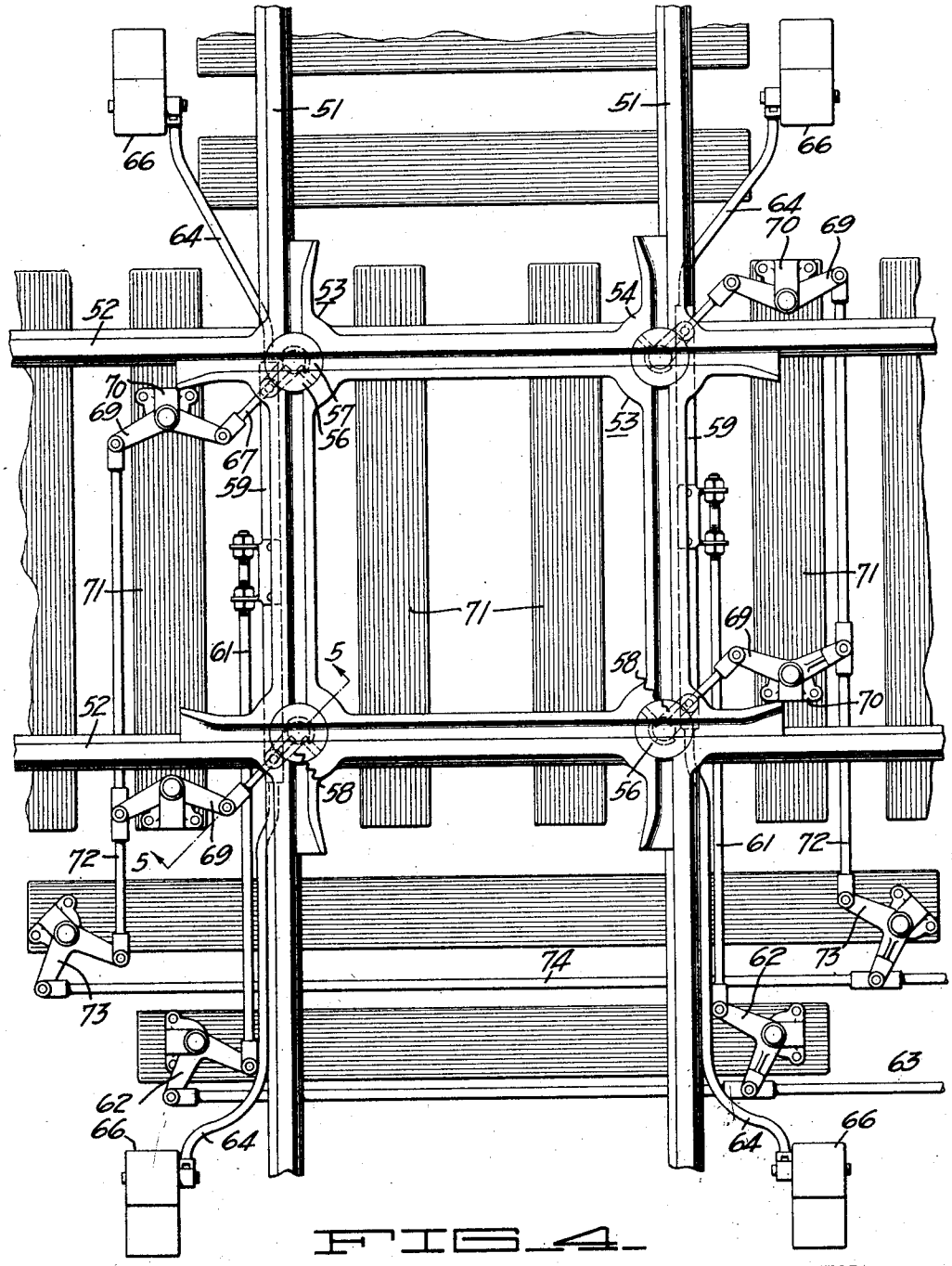


FIG 4

INVENTOR
Edward L. Fairbanks
BY
White, Prost & Fryer
ATTORNEYS

Sept. 24, 1929. E. L. FAIRBANKS 1,729,098

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FIG. 5.

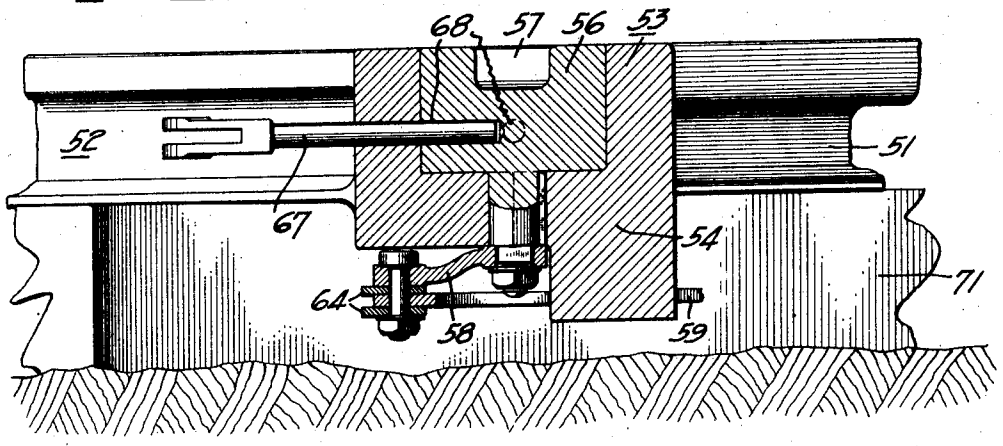
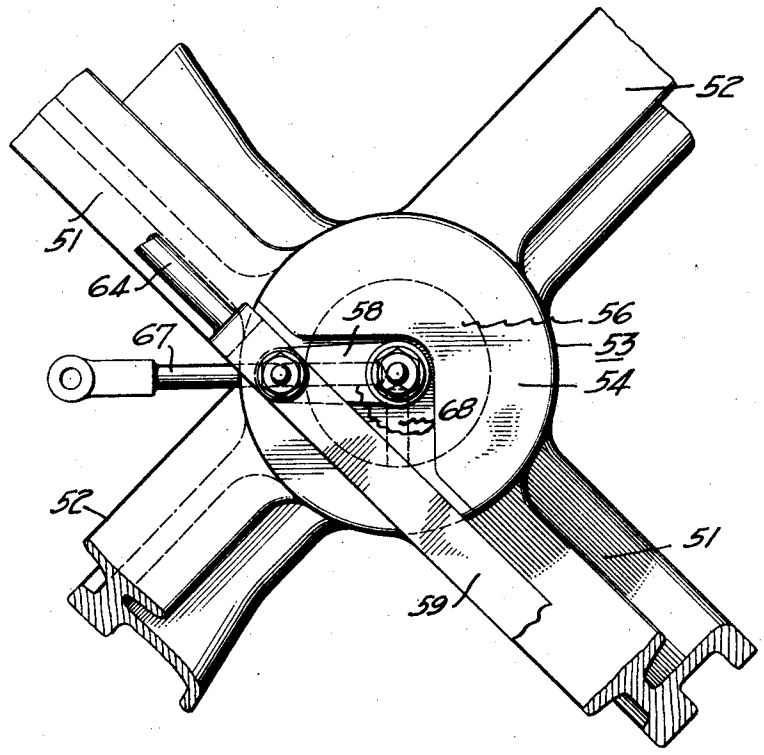


FIG. 6.



INVENTOR
Edward L. Fairbanks
BY
White, Frost & Fryer
ATTORNEYS

Patented Sept. 24, 1929 1,729,098

UNITED STATES PATENT OFFICE

EDWARD L. FAIRBANKS, OF GLENDALE, CALIFORNIA, ASSIGNOR TO CONTINUOUS RAIL CROSSING CORPORATION, OF RENO, NEVADA, A CORPORATION OF NEVADA

RAIL CROSSING

Application filed January 17, 1928. Serial No. 247,305.

My invention relates to crossings at the intersection of two or more railroad tracks and is particularly related to the type of crossing disclosed in Patent No. 1,169,196 to Luther Sadler et al. entitled Railroad crossing.

An object of my invention is to provide means for indicating the position of the turntables in the crossing.

Another object of my invention is to provide means for positively locking the turntables in either of their two extreme positions.

An additional object of my invention is to improve the construction and reliability of crossings of the type mentioned above.

A further object of my invention is to provide a crossing which is well adapted for use with standard railway appliances.

My invention possesses other advantageous features, some of which with the foregoing will be set forth at length in the following description where I shall outline in full that form of the railroad crossing of my invention, which I have selected for illustration in the drawings accompanying and forming part of the present specification. In said drawings I have shown one form of railroad crossing embodying my invention, but it is to be understood that I do not limit myself to such form since the invention, as set forth in the claims, may be embodied in a plurality of forms.

In said drawings:

Fig. 1 is a plan of a railway crossing showing a preferred embodiment of my invention.

Fig. 2 is a cross section thru one of the rail intersections, the plane of section being indicated by the line 2—2 of Fig. 1.

Fig. 3 is a cross section taken on the line 3—3 of Fig. 2.

Fig. 4 is a plan of a railway crossing showing a modified form of my invention.

Fig. 5 is a cross section on the line 5—5 of Fig. 4.

Fig. 6 is an enlarged view from below of a rail intersection such as is shown in Figs. 4 and 5.

In its preferred form, my invention preferably comprises a rail intersection formed with a casing in which is rotatably mounted a turntable having a groove in the upper face thereof adapted to register, in either of two extreme positions, with either of the intersecting rails, together with an interlock for holding the turntable in either extreme position and an indicator for showing the position in which the turntable is located.

In the form of the invention disclosed in Figs. 1, 2 and 3, at each of the four intersections 9 of two pairs of rails 11 and 12, I preferably provide a casing 13. This casing can be formed integrally with the intersecting rails or can be formed separate therefrom. Each of the casings 13 is preferably cylindrical in interior contour to receive a generally cylindrical turntable 14 having a diametral groove 16 thereacross. The turntable is adapted to be rotated within the casing and the groove is of such form and dimensions that it will register or be in alinement with either of the rails 11 or 12 when the turntable is rotated from one extreme position thru approximately 90° to its other extreme position.

Means are provided for suitably rotating each of the turntables 14. Each turntable 14 is preferably provided with a centrally depressed extension 17 journaled within the casing 13 and having a non-circular seat 18 adjacent its lower end. A 90° segment 15 on the extension 17 and operating in a 180° depression 20 in the casing 13 insures that the turntable is properly located in its extreme positions. The turning means also includes levers 19 each having a non-circular aperture therethru adapted to engage the various non-circular seats 18 provided upon the several extensions 17. Each lever is held in place by a suitable fastening 21 secured to the depending portion 17. Preferably the levers 19 of each pair of turntables 14 are joined together for common actuation. This is preferably accomplished by a pair of tie links 22 and 23 pivoted to the free ends of the levers 19 and having eared extensions 24 adjacent their central portions. Adjustably connected to the extensions 24 are rods 26 leading to one side of the pair of tracks 12. These rods are connected by suitably pivoted bell cranks 27 to a

common actuator 28 preferably extending to a central tower, not shown, in which all of the actuating and control mechanism is located. Suitable movement of the rod 28 controls the linkage in such manner that all of the turntables are properly rotated between their two extreme positions to cause the grooves 16 to aline themselves with appropriate rail pairs 11 or 12.

To insure that all of the turntables 14 are located in their proper extreme positions, I preferably provide an interlocking mechanism. This interlock is arranged to be operative even though breakage or other contingencies interfere with the turntable rotation mechanism. To render the interlock directly responsive to turntable movement, I preferably form each turntable of a pair with gear teeth 29 which are adjustably held in mesh by screws 30 with seats of teeth 31 on a strip 32. Pivoted to each of the strips 32 joining a pair of turntables is an arm 33 having a pair of perforations 34 adjacent its outer end. The ends of the arms 33 are preferably guided in suitable blocks 35 secured to the ties on which the rail pairs 11 and 12 are mounted. The perforations are designed to receive suitable locking pins 36 formed by the extremities of two joined rods 37 and 38 united by a coupling 39 and linked by a suitable bell crank 40 and connecting rod 41 to a second bell crank 42 and a control rod 43 extending to the central tower. When the rod 43 is suitably manipulated, the locking pins 36 are withdrawn from the perforations 34 in the arms 33 and transverse movement of the arms in the blocks 35 is possible. The turntables 14 can then be turned from one extreme position to the other, and the locking pins 36 can be shot home by suitable movement of the control rod 43. Thus the moving parts are firmly held so that there can be no accidental movement thereof after the turntables have been suitably located in either of their extreme positions.

Further, I preferably provide means for positively indicating the position in which the turntables 14 are located despite any breakage in the actuating linkage. This is conveniently effected by securing an extension 46 to each strip 32 connecting a pair of the turntables 14. The extension is connected to an indicator actuator 47 of the standard type which conveniently can actuate the usual railroad semaphores. It will be appreciated that thus the actuator 47 affords an indication of the particular extreme position in which the turntables 14 are located and whether or not they are in extreme position. Due to the interconnection of the interlock and the signal actuator, it is impossible for a clear signal to be given by the actuator 47 unless the interlocking pins 36 can be passed thru the perforations 34 in the arm 33. This, in turn, is impossible of accomplishment unless the turntables 14 are suitably positioned. By these means, therefore, I have provided an interlocking and signalling arrangement which will afford an indication if the turntables are not suitably located.

In Figs. 4, 5 and 6 a modification is shown in which the two pairs of rails 51 and 52 join in intersections 53. These intersections are each provided with casings 54, similar to those previously described, in which turntables 56 rotate. These turntables 56 likewise are provided with diametral grooves 57 adapted to register in either of two extreme positions with either of the rail pairs 51 or 52. The turntables are rotated by means of levers 58 joined in pairs by strips 59 having adjustable connections to rods 61. These rods connect thru bellcranks 62 to an actuating rod 63 moved by suitable mechanism preferably in a central control tower. To afford an indication of the position of the turntables, an actuating extension 64 is provided on each rod 59 to operate an indicator actuator 66 of a standard type.

Serving as interlocks for the correct positioning of the turntables 56 are pins 67 extending radially thru suitable apertures in the casing 54 and into alined apertures 68 in turntables 56. These pins are propelled and retracted by bellcranks 69 pivoted on anchors 70 secured to the ties 71 on which the rails 51 and 52 are mounted. Pairs of the bellcranks 69 are connected by a common member 72 in turn joined by secondary bellcranks 73 to an operating rod 74 preferably actuated from a central tower.

With this form of the invention, movement of all of the turntables is simultaneously effected by the actuating rod 63 and at the same time a suitable indication is afforded by the indicator actuators 66. A separate linkage is provided for interlocking the turntables in either of their two extreme positions and this interlock is separately controlled thru the operating rod 74.

In both forms of my invention, I have provided means for utilizing the standard railroad safety appliances to indicate whether or not the turntables at the crossing are properly arranged for passage of a train thereover and furthermore I have provided interlocking devices for preventing accidental displacement of the turntables. Further, an improved construction is shown which is substantially fool-proof and in which breakage of the individual parts immediately affords an indication that the crossing is not in proper and safe condition.

I claim:

1. A railroad crossing comprising intersecting rails, a casing at the intersection of said rails, a turntable in said casing adapted to rotate therein between two extreme positions, said turntable having a groove adapted to be alined in said extreme positions

with either of said rails, linkage adapted to be moved to rotate said turntable, an apertured arm movable in conjunction with said turntable, and a pin engageable with said arm in said extreme positions of said turntable to prevent movement thereof.

2. A rail crossing comprising intersecting rails, a casing at the intersection of said rails, a turntable in said casing adapted to rotate therein, said turntable having a groove adapted to be alined with either of said rails in two extreme positions of said turntable, linkage for rotating said turntable, an apertured arm movable in conjunction with said turntable and an interlock engageable with said arm to prevent movement of said turntable in either of said extreme positions thereof.

3. A rail crossing comprising intersecting rails, a casing at the insersection of said rails, a turntable in said casing adapted to rotate therein, said turntable having a groove adapted to be alined with either of said rails in two extreme positions of said turntable, linkage for rotating said turntable, an indicator actuator, and means for operating said actuator in response to the movement of said turntable, and means for rendering said operating means inoperable.

4. A rail crossing comprising intersecting rails, a casing at each of the intersections of said rails, a turntable in each of said casings adapted to rotate therein, each of said turntables having a groove adapted to be alined at two extreme positions of said turntable with either of the rails at the associated intersection, an indicator actuator having apertures therein connected to a pair of said turntables, and a separate linkage for locking said actuator including a pin engageable with said apertures.

5. A railroad crossing comprising a plurality of intersecting rails having casings at the intersections of the rails, turntables positioned for rotation in the casings, linkage members connected with said turntables for rotating the same, indicator operating means including apertured arms connected for movement with said turntables, and interlocking pins engageable with the arms and operated by a separate set of linkage members.

In testimony whereof, I have hereunto set my hand.

EDWARD L. FAIRBANKS.