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RAILWAY CROSSING.

APPLICATION FILED JULY 30, 1908. RENEWED MAY 20, 1912.

1,043,426.

Patented Nov. 5, 1912.

3 SHEETS-SHEET 1.

Fig. 1.

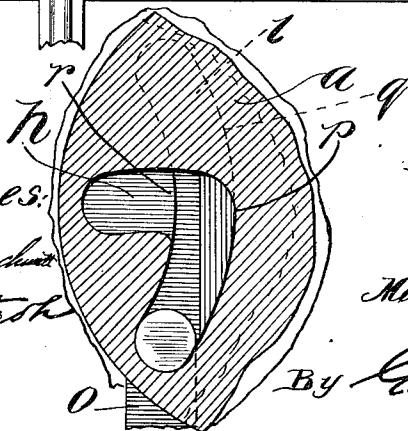
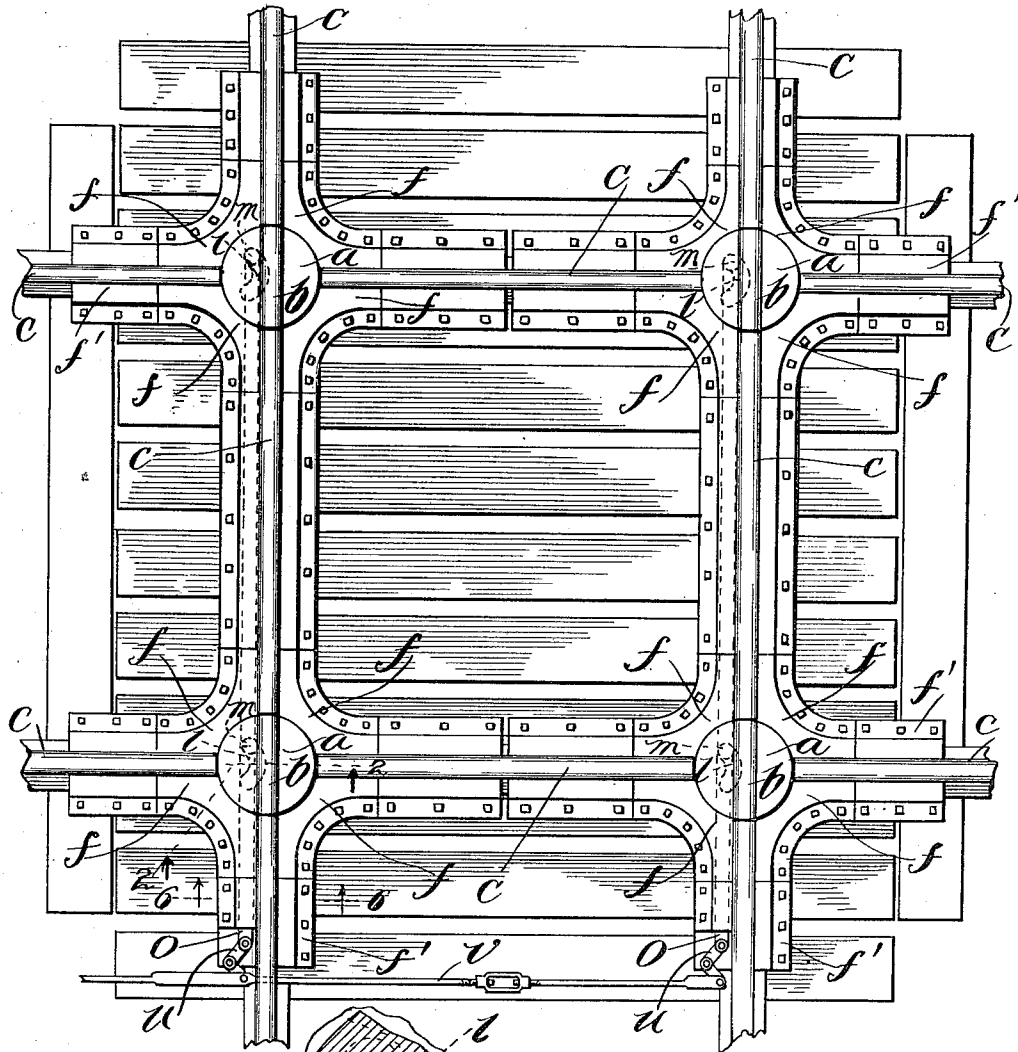


Fig. 7.

Witnesses:

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By *C. L. Cragg*  
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3 SHEETS—SHEET 2.

Fig. 2.

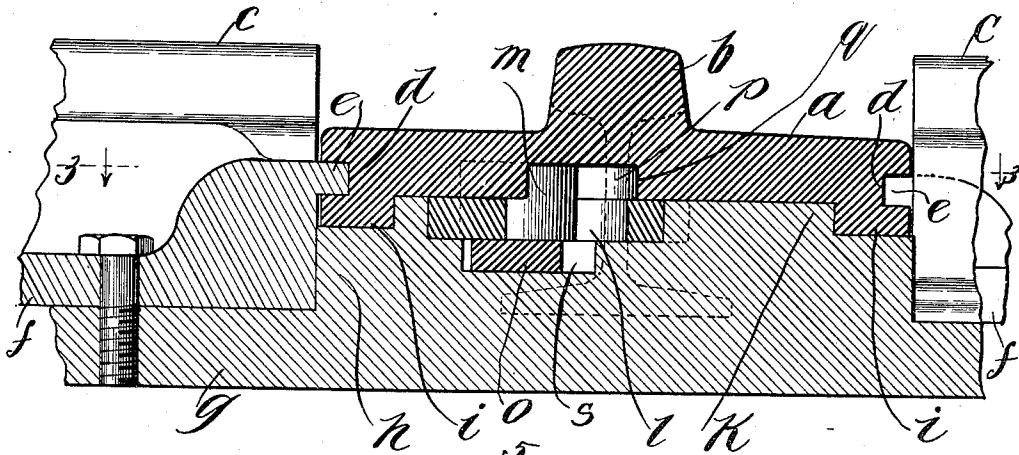
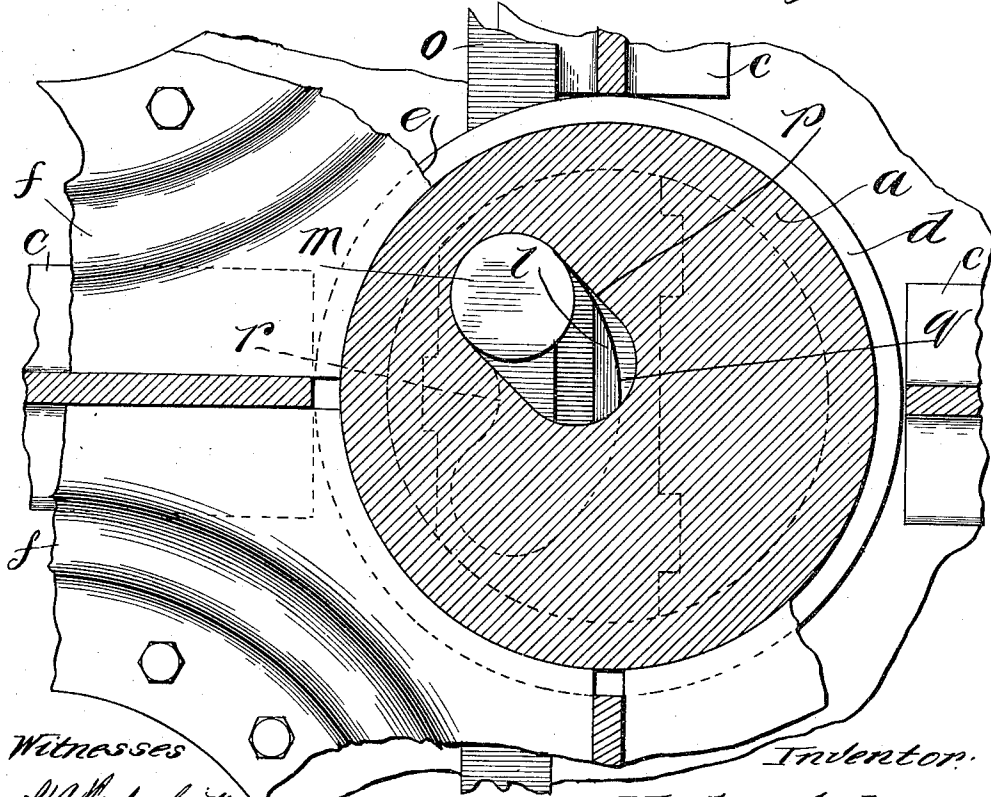


Fig. 3.



Witnesses

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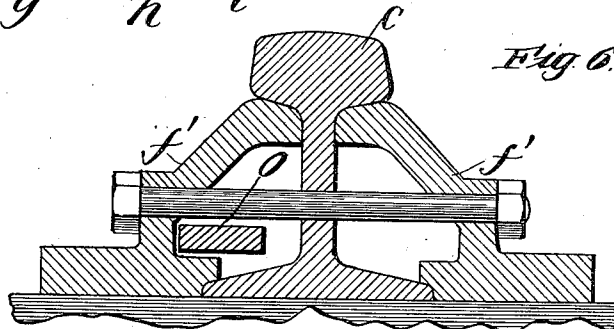
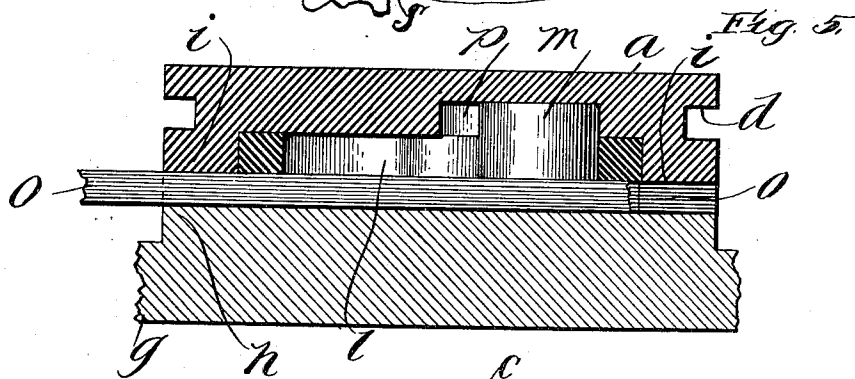
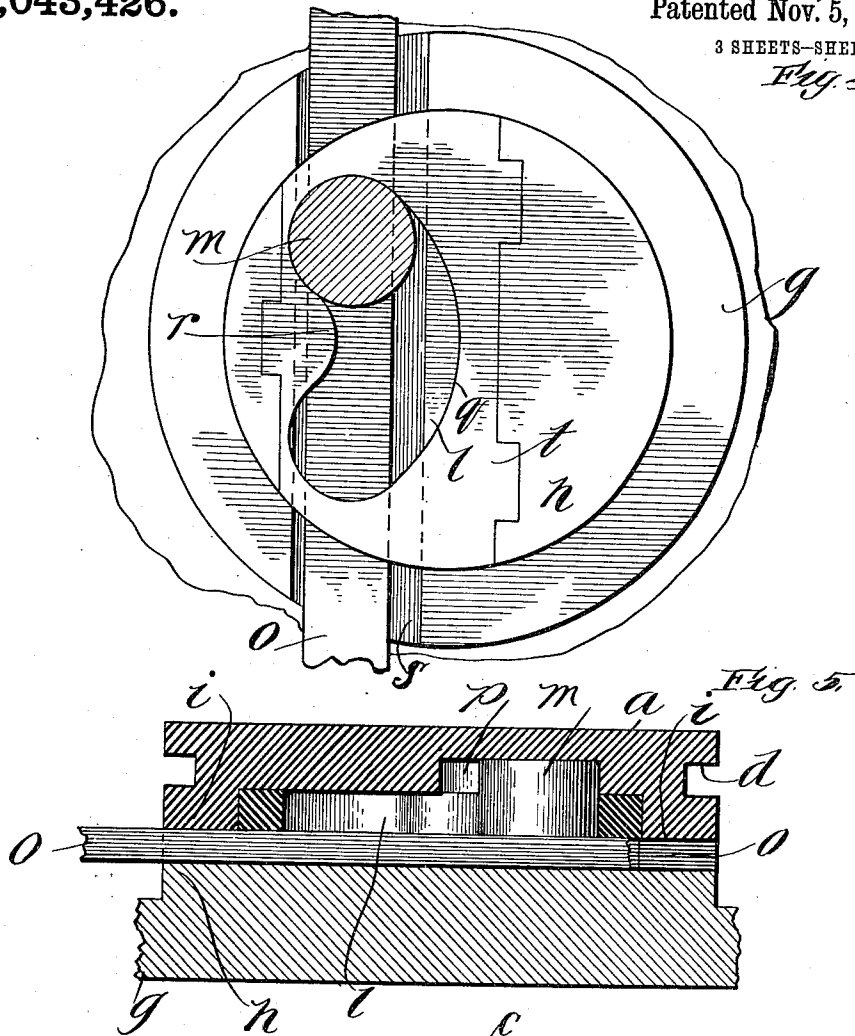
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3 SHEETS-SHEET 3.

*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

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## RAILWAY-CROSSING.

1,043,426.

Specification of Letters Patent.

Patented Nov. 5, 1912.

Application filed July 30, 1908, Serial No. 446,118. Renewed May 20, 1912. Serial No. 698,623.

*To all whom it may concern:*

Be it known that I, MARSHALL F. HOLMES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Railway-Crossings, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to structures for rendering intersecting track rails continuous and particularly to that class of structures in which turn-tables are employed that carry rail sections adapted for alinement with stationary sections of intersecting track rails.

My invention will be well understood by reference to the preferred embodiment thereof shown in the accompanying drawings, in which—

Figure 1 is a plan view of a railway crossing constructed in accordance with the preferred embodiment of the invention. Fig. 2 is a sectional view on line 2 2 of Fig. 1. Fig. 3 is a sectional plan view on line 3 3 of Fig. 2. Fig. 4 is a plan view of a base plate that supports the turn-table. Fig. 5 is a sectional view on line 5 5 of Fig. 3. Fig. 6 is a sectional view on line 6 6 of Fig. 1. Fig. 7 is a view indicating parts of a structure wherein the turn-table rotates through a lesser angle than does the turn-table of Figs. 1 to 5.

Like parts are indicated by similar characters of reference throughout the different figures.

In the embodiment of the invention shown in Figs. 1 to 5, inclusive, I have illustrated a structure for rendering track rails that intersect at right-angles, continuous. While I have illustrated and will specifically describe a structure adapted to track rails that intersect at right-angles, I do not thereby limit myself to the adaptation of my invention to track rails that intersect at right-angles, for the adaptation of my invention to track rails that intersect at other angles, is obvious.

In the embodiment of the invention shown, there are four turn-tables per crossing, one turn-table being located at each crossing corner. Where there are four turn-

tables per crossing, each turn-table *a* carries but one rail section *b* that is adapted for alinement with the stationary sections *c c* of track rails. The rail section *b* carried by the turn-table is preferably integrally formed with the turn-table, as illustrated most clearly in Fig. 2, though I do not wish to be limited to a construction in which the rail section *b* is integrally formed with the turn-table. Each turn-table has a peripheral groove *d* that receives the inseting flanges *e* of clamping quadrants *f* which are bolted to a base plate *g* and which have clamping engagement with the flanges of the rail sections *c*, as indicated in Fig. 6. The base plate *g* is provided with an upwardly projecting vertical portion *h* that constitutes a supporting plate upon which the turn-table may move, the extension *h* being circular and of a diameter slightly in excess of the diameter of the turn-table *a*, so that a sufficient clearance is assured between the periphery of the turn-table and the clamping quadrants *f* and between the periphery of the turn-table and the opposing end faces of the rail sections *c*. The inseting flanges *e*, by engagement with the peripheral grooves *d* in the turn-table, serve to prevent vertical displacement of the turn-table, while at the same time permitting the turn-table to move upon the top of the base plate portion *h*. The inseting flanges *d* take part in confining the turn-table to a fixed vertical axis of rotation, though this function of said inseting flanges is supplemented by the interrelation of the base plate portion *h* and the turn-table *a* shown in Fig. 2, where the turn-table is illustrated as having a nether annular shoulder *i* that engages an annular depression in the top of the base plate portion *h*, the base plate portion having a central vertical circular portion *k* that engages, at its periphery, the inner peripheral portion of the annular shoulder *i*. The turn-table of the structure that I have thus far described is always free to rotate, because the rail sections *c* cannot have binding engagement therewith, on account of the abutment afforded for said rail sections by the base plate portion *h*, and the said turn-table is accurately confined to a single vertical axis of rotation owing to

the duplicate means employed for this purpose, residing in the structural features *d*, *e* and *i* above described.

The fixed position of the base plate is always assured, inasmuch as the clamping quadrants *f* are suitably secured to the base plate and snugly fill the spaces between the associate approach rail sections *c*. In the preferred embodiment of the invention, the movement of the turn-table is effected by the co-action of operating mechanism with the rigidly secured base plate *h* and the turn table *a*. In order that the base plate *h* may take part in effecting the fractional rotation of the turn-table supported thereon, it is provided with a suitable formation, which is preferably a slot *l*, for engaging a portion *m*, preferably a pin, carried by an actuating bar *o*, the slot *l* guiding said pin in its travel. The pin *m* in addition to engaging the slot *l* in the stationary base plate, also engages a slot *p* in the turn-table. The slots *l* and *p* are so interrelated that an operating movement imparted to the actuating bar *o* by a switch attendant, will effect the rotation of the turn-table through the desired angle.

In the construction shown in Figs. 2 to 5, inclusive, the turn-table is adapted to be rotated through an angle of ninety degrees, and is, therefore, adapted to tracks that intersect at right-angles. In this construction the slot *p* in the under face of the turn-table may be radially disposed, while the slot *l* may be of arc shape with curves projecting toward the axis of rotation of the turn-table, as indicated most clearly in Fig. 3. The curved wall *q* serves, in coöperation with the radially disposed slot *p*, to guide the pin *m* in arcal travel to effect a ninety degree movement of the turn-table.

In the preferred embodiment of my invention, the locking means is not extraneous to the turn-table structure, but is within the compass thereof, and desirably resides in the provision of a wall portion *r* of the slot *l*, which wall portion is desirably concentric with the wall portion *q* and intervenes between alternative positions of a portion carried by the actuating bar, which portion is preferably the same pin *m*, whereby when the actuating bar is longitudinally moved sufficiently to place the turn-table in either of its alternative positions, the projection *r* engages the pin *m* to hold it and thereby enabling the turn-table to withstand the forceful action of the rolling stock moving upon the track, which might otherwise accidentally move the turn-table and thereby through the rail section carried thereby out of alinement with the track rail sections upon which the rolling stock is moving. This locking action will be apparent by reference to Fig. 3, for it will be seen that if the pin is held by the locking element *r*, said pin is then stationary, because the

locking element *r* is stationary, it being fixed with respect to the stationary base plate.

If a vehicle wheel upon entering or leaving a turn-table, causes turning effort upon the table by the wheel flange in one direction or the other, such turning effort is entirely counter-acted by the locking or holding arrangement that I have described.

As will be understood, the slots *l* and *p* are relatively designed to suit the crossing to which the invention is adapted. These slots in Fig. 7 are adapted to co-act with the actuating bar so as to effect movement of the turn-table throughout a range of forty-five degrees. The movements of the turn-table may be greater or less, according to the designs and relative arrangements of the slots.

The actuating bar *o* is received within a slot *s* in the base plate, which slot is closed at its top partially by an insert *t*, to be described, and partially by the annular shoulder *i* of the turn-table, the said actuating bar thus entering between the base plate and turn-table. By the structure which has been described, the actuating bar is in shifting or sliding engagement, both with the turn-table and base plate, and while I preferably provide said bar with the pin *m* for the purpose of affording this sliding or shifting engagement of the bar and the turn-table and base plate, I do not wish to be limited to these structural characteristics for effecting the operation of the turn-table. The slot *s* is sufficiently wide to permit of the lateral back and forth movement of the longitudinally workable actuating bar, and although the space of the slot is not filled by the actuating bar, the said slot is closed to the weather by means of the clamping quadrants *f* that are extended a sufficient distance away from the turn-table for the purpose, continuations of these clamping quadrants constituting housings for said actuating bar. Referring to Fig. 1, I have shown supplemental clamping devices *f*<sup>1</sup> for further securing the rail sections *c* in their proper levels and positions, which supplemental clamps *f*<sup>1</sup> may also constitute the housings for the actuating bar *o* further to protect the slot *s* from the weather.

The parts of the structure that are most subject to wear are desirably made of manganese steel, to which end the portion of the base plate *h* which is slotted is desirably made in a separate piece *t* of manganese steel, as shown most clearly in Fig. 4, while the actuating bar, together with its pin *m*, and the entire turn-table, together with the rail section *b* carried thereby, are also made of manganese steel.

Where each crossing is provided with a turn-table structure at each of its corners, I may cause the simultaneous turning move-

ment of said turn-table by some such mechanism as that illustrated in Fig. 1, where I have shown two actuating bars, one carrying turn-table-engaging pins *m* upon one side of the crossing and the other carrying turn-table-engaging pins *m* upon the opposite side of the crossing. These actuating bars *o* are connected by means of bell-crank levers *u* (pivoted at their elbows) with a common actuating rod *v* leading to a switch-stand or tower, by the movement of which rod *v* the simultaneous movement of the actuating bars *o* may be secured, and thereby the simultaneous movement of the turn-tables, so that either of the tracks at the crossing may be made continuous, whereby the rolling stock is relieved of the excessive concussions and jolts that it has hitherto received in railroad practice.

It is unnecessary to dwell upon the far-reaching advantages that result from mechanism that will render intersecting track rails continuous, as they will be fully appreciated by those familiar with railroading.

I have shown in Fig. 1 but one crossing and have shown each actuating bar *o* connected with but two turn-tables, but it is obvious that the actuating bars may be operatively connected with additional turn-tables of other crossings, if desired.

It is obvious that changes may readily be made in the embodiment of my invention herein shown and particularly described without departing from the spirit of the invention, and I do not, therefore, wish to be limited to the precise details of construction illustrated and particularly described, but,

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

1. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and an actuating bar for turning the turn-table, said turn-table and bar being provided with interlocking elements for holding the turn-table in adjustment.

2. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and an actuating bar for turning the turn-table, said bar being in shifting engagement with the turn-table and base plate, said turn-table and bar being provided with interlocking elements for holding the turn-table in adjustment.

3. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and an actuating bar for turning the turn-table, said bar entering between the turn-table and its base plate, said turn-table and base plate

being provided with slots with which said bar has engagement to effect the operation of the turn-table, said turn-table and bar being provided with interlocking elements for holding the turn-table in adjustment.

4. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and a longitudinally movable turn-table actuating bar entering between the base plate and turn-table and guided by the base plate to move back and forth laterally, said turn-table and bar being provided with interlocking elements for holding the turn-table in adjustment.

5. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and a longitudinally movable turn-table actuating bar entering between the base plate and turn-table and guided to move back and forth laterally, said turn-table and bar being provided with interlocking elements for holding the turn-table in adjustment.

6. A railroad crossing structure, including a turn-table and carrying a rail section adapted for alinement with track rail sections, and a longitudinally movable actuating bar in gearless sliding engagement with the turn-table.

7. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and a longitudinally movable actuating bar entering between the base plate and turn-table in pin and slot engagement with the turn-table.

8. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and a longitudinally movable actuating bar entering between the base plate and turn-table in pin and slot engagement with the turn-table.

9. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and a turn-table actuating bar in gearless sliding engagement with the turn-table and base plate.

10. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and a turn-table actuating bar in pin and slot engagement with both the turn-table and the base plate.

11. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for

- alinement with track rail sections, and a turn-table actuating bar in pin and slot engagement with both the turn-table and the base plate.
12. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and a turn-table actuating bar in shifting engagement with the turn-table and base plate, the base plate and bar cooperating with the turn-table to hold it in adjustment.
13. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and a turn-table actuating bar in pin and slot engagement with both the turn-table and the base plate, the base plate and bar cooperating with the turn-table to hold it in adjustment.
14. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and a turn-table actuating bar in pin and slot engagement with both the turn-table and the base plate, the base plate and bar cooperating with the turn-table to hold it in adjustment.
15. A railroad crossing structure, including a base plate, and a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, the bar having sliding connection with the turn-table and base plate, such sliding connection being gearless.
16. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, the turn-table having a slot, the base plate having a slot, and a turn-table actuating bar in engagement with said slots, a slot wall of the base plate being interposed between alternative positions of a portion carried by said bar and engaged by said wall to lock the turn-table in its alternative positions.
17. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, the turn-table having a slot, the base plate having a slot having a curved wall, and a turn-table actuating bar in engagement with said slots, said curved slot wall of the base plate being interposed between alternative positions of a portion carried by said bar and engaged by said wall to lock the turn-table in its alternative positions.
18. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, the base plate having a slot, and a turn-table actuating bar in engagement with said slot and in shifting engagement with the turn-table, a slot wall of the base plate being interposed between alternative positions of a portion carried by said bar and engaged by said wall to lock the turn-table in its alternative positions.
19. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, the base plate having a curved slot, and a turn-table actuating bar in engagement with said slot and in shifting engagement with the turn-table, a curved slot wall of the base plate being interposed between alternative positions of a portion carried by said bar and engaged by said wall to lock the turn-table in its alternative positions.
20. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, the turn-table having a slot, the base plate having a slot, and a turn-table actuating bar in engagement with said slots, a slot wall of the base plate serving to engage a portion carried by said bar to hold the turn-table in adjustment.
21. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, the base plate having a slot, and a turn-table actuating bar in engagement with said slot and in shifting engagement with the turn-table, a slot wall of the base plate serving to engage a portion carried by said bar to hold the turn-table in adjustment.
22. A railroad crossing structure, including a turn-table carrying a rail section adapted for alinement with track rail sections, a slotted portion with respect to which the turn-table is movable and presenting a curved guiding wall, and a turn-table actuating bar guided by said wall and in shifting engagement with the turn-table.
23. A railroad crossing structure, including a base plate carrying a rail section adapted for alinement with track rail sections, a slot in said base plate presenting a curved guiding wall, and a turn-table actuating bar guided by said wall, and in shifting engagement with the turn-table.
24. A railroad crossing structure, including a turn-table carrying a rail section adapted for alinement with track rail sections, a turn-table actuating bar in shifting engagement with the turn-table, and a curved wall portion interposed between alternative positions of a portion carried by said bar and engaged by said wall portion to lock the turn-table in its alternative positions.
25. A railroad crossing structure, including

ing a turn-table carrying a rail section adapted for alinement with track rail sections, a turn-table actuating bar in shifting engagement with the turn-table, and a locking portion interposed between alternative positions of a portion carried by said bar and engaged by said wall portion to lock the turn-table in its alternative positions.

26. A railroad crossing structure, including a turn-table carrying a rail section adapted for alinement with track rail sections, a turn-table actuating bar in shifting engagement with the turn-table, and a locking element serving to engage a portion carried by said bar to lock the turn-table.

27. A railroad crossing structure, including a turn-table carrying a rail section adapted for alinement with track rail sections, an actuating bar in shifting engagement with the turn-table, a pin and a curved slot engaged thereby for directing the actuating bar in its movement.

28. A railroad crossing structure, including a base plate, a turn-table carrying a rail section adapted for alinement with track rail sections, and an actuating bar in shifting engagement with the turn-table, said base plate guiding a portion carried by the bar in a curved line of travel.

29. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and a longitudinally movable turn-table actuating bar entering between the base plate and turn-table and guided to move back and forth laterally, said turn-table and bar being provided with interlocking elements for holding the turn-table in each of its adjusted positions.

30. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for

alinement with track rail sections, and a longitudinally movable turn-table actuating bar guided to move back and forth laterally.

31. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and a longitudinally movable turn-table actuating bar guided to move back and forth laterally, said turn-table and bar being provided with interlocking elements for holding the turn-table in an adjusted position.

32. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and a longitudinally movable turn-table actuating bar entering between the base plate and turn-table and guided by the base plate to move back and forth laterally, said turn-table and bar being provided with one set of interlocking elements to hold the turn-table in one adjusted position and another set of interlocking elements to hold the turn-table in an alternative position.

33. A railroad crossing structure, including a base plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, and a longitudinally movable turn-table actuating bar guided to move back and forth laterally, said turn-table and bar being provided with one set of interlocking elements to hold the turn-table in one adjusted position and another set of interlocking elements to hold the turn-table in an alternative position.

In witness whereof, I hereunto subscribe my name this 27th day of July, A. D., 1908.

MARSHALL F. HOLMES.

Witnesses:

G. L. CRAGG,  
L. G. STROH.