

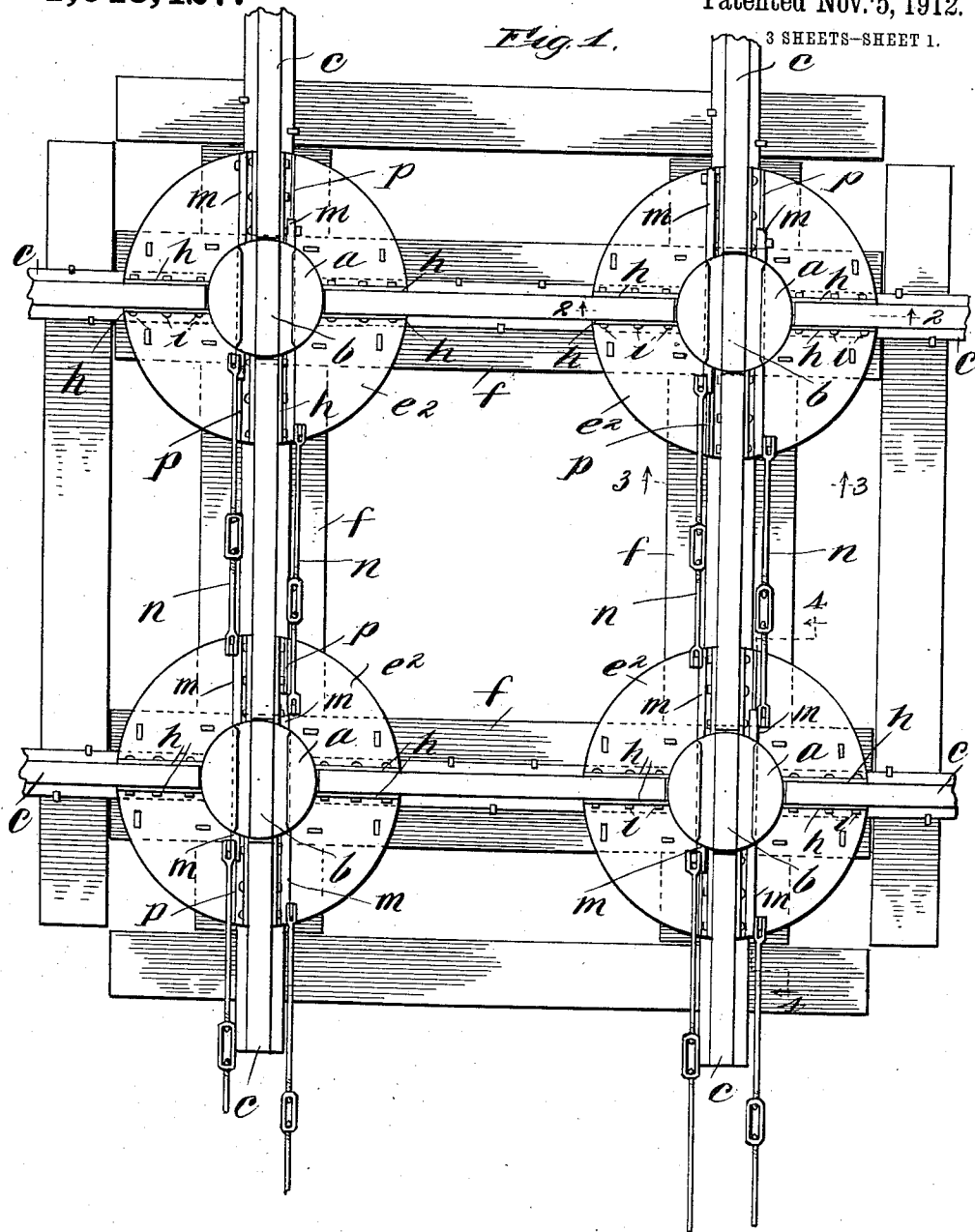
M. F. HOLMES, DEC'D.
L. H. HOLMES, EXECUTRIX.
RAILWAY CROSSING STRUCTURE.

APPLICATION FILED SEPT. 7, 1909. RENEWED MAY 20, 1912.

1,043,427.

Patented Nov. 5, 1912.

3 SHEETS-SHEET 1.



Witnesses:
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Inventor
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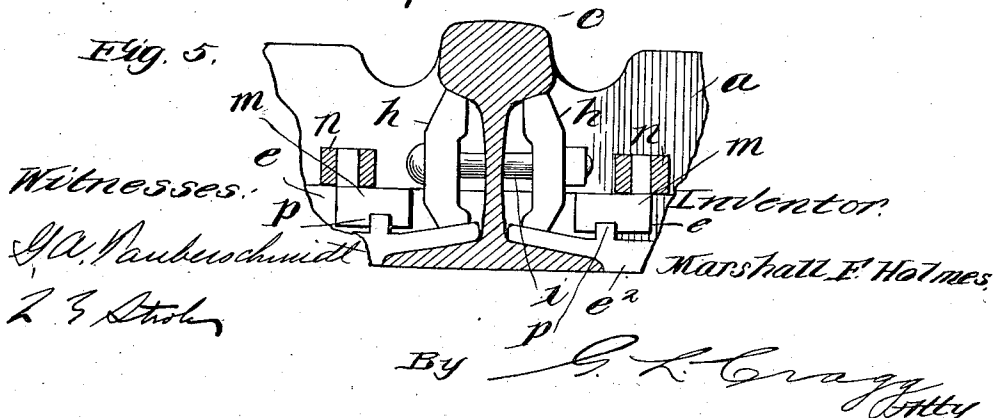
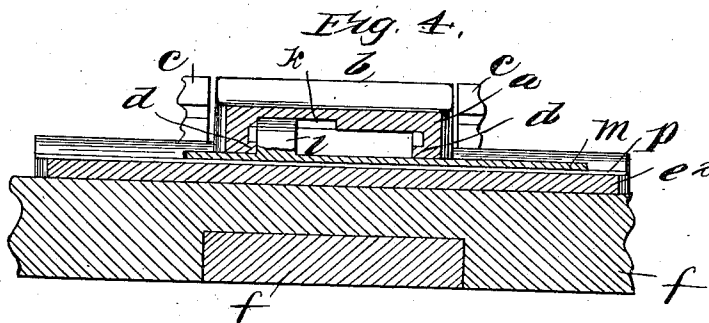
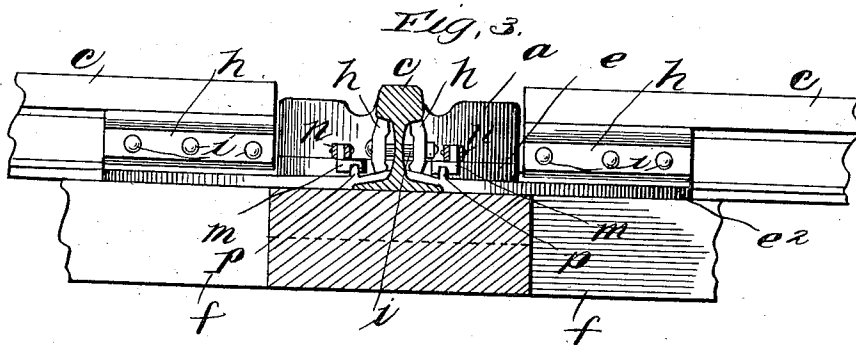
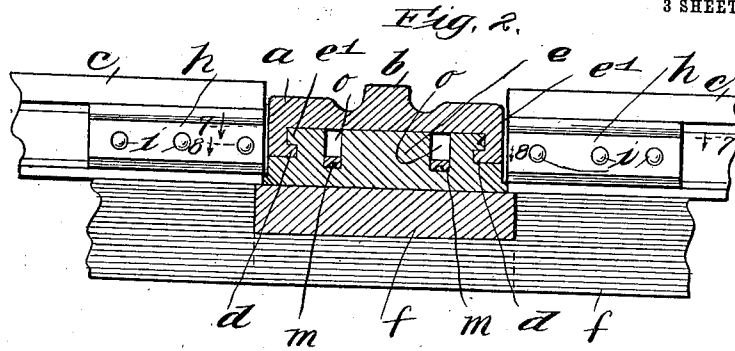
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3 SHEETS—SHEET 3.

Fig. 6.

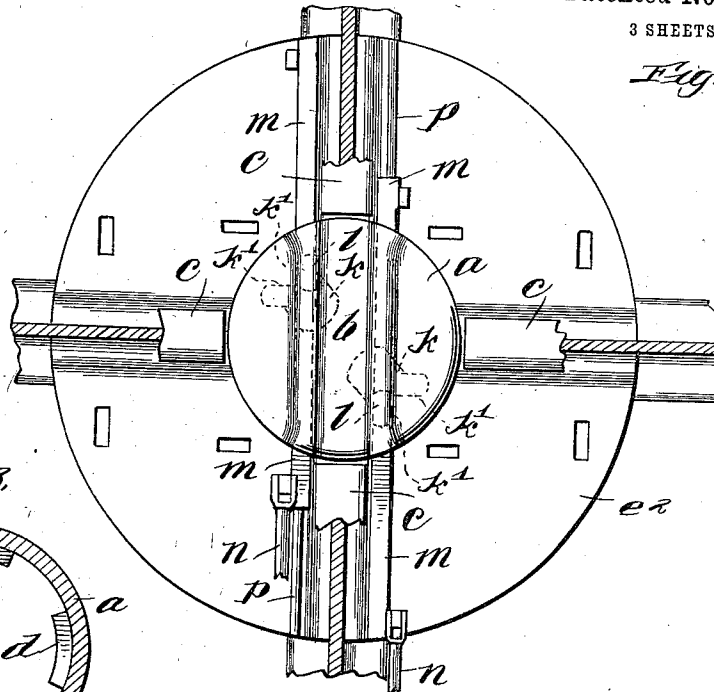


Fig. 8.

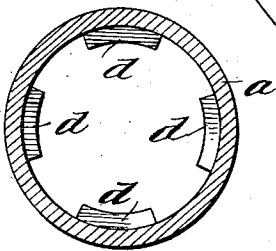
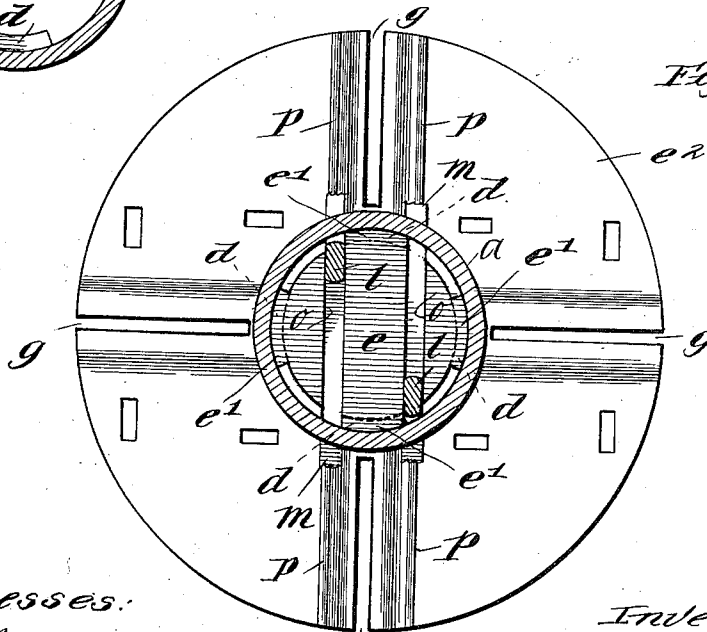


Fig. 7.



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UNITED STATES PATENT OFFICE.

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RAILWAY-CROSSING STRUCTURE.

1,043,427.

Specification of Letters Patent.

Patented Nov. 5, 1912.

Application filed September 7, 1909. Serial No. 516,353. Renewed May 20, 1912. Serial No. 698,628.

To all whom it may concern:

Be it known that I, MARSHALL F. HOLMES, 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-Crossing Structures, 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 railroad crossing structures and several features thereof relate to those railway crossing structures that include turn-tables in their construction that carry rail sections adapted for alinement with track rail sections.

Another feature of my invention relates to the manner of supporting the rail sections that form the diamond of the crossing, this feature of my invention being realized by providing four ties, one underlying each rail section composing the diamond and extending longitudinally thereof, whereby a uniform and continuous bed is provided under each of the rail sections of the diamond.

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 complete railway crossing structure made in accordance with the preferred embodiment of the invention. Fig. 2 is a view in cross-section of one of the turn-tables illustrated in Fig. 1, the view being taken on line 2 2 of Fig. 1. Fig. 3 is a view on line 3 3 of Fig. 1. Fig. 4 is a view taken on line 4 4 of Fig. 1. Fig. 5 is an enlarged view of part of the structure as it appears in Fig. 3. Fig. 6 is a plan view of the turn-table construction located at one of the corners of the crossing, certain parts being broken away. Fig. 7 shows a plan view of the base plate and a horizontal section of the turn-table on line 7 7 of Fig. 2. Fig. 8 is a sectional plan view of the turn-table alone, taken on line 8 8 of Fig. 2.

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

In the embodiment of the invention illustrated, I have shown 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 illustrated, there are four turn-tables *a* per crossing, one turn-table being located at each crossing corner. Where there are four turn-tables per crossing, each turn-table carries but one rail section *b* that is adapted for alinement with stationary rail sections *c* of track rails and the rail sections that form the diamond. As indicated, each rail section *b* is not of the stereotyped form, but is of such construction as to occasion the proper tread surfaces, the metal of the turn-table being cut away on each side of the tread surface so as to afford room for receiving the wheel flanges. The rail section *b* carried by the turn-table is preferably integrally formed with the turn-table, 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 four inseting shoulders or flanges *d* that work in a plane located below the top of the base-plate *e*, the base-plate *e* having four outseting flanges *e*¹ that overlie the flanges *d* when the base-plate and turn-table are assembled, spaces intervening between the outseting flanges *e*¹ and the bottom of the base-plate *e* that constitute receiving grooves for the flanges *d*, while, on the other hand, spaces intervene between the flanges *d* and the upper portion of the turn-table that constitute grooves for receiving the outseting flanges *e*¹. In this way, the turn-table and base-plate are so inter-related that when the turn-table occupies any of its operative positions, it cannot be displaced vertically, the construction permitting the turn-table to be rotated from either of its working positions to the other. The spaces intervening between the inseting flanges *d* and the spaces intervening between the outseting flanges *e*¹ are such that when the turn-table occupies a position intermediate between any of its working positions, it may be readily withdrawn, and when the inseting flanges *d* are brought to register with the spaces between the outseting flanges *e*¹, the turn-table may readily be slipped down to that position in which the inseting flanges *d* will be in the plane of the space intervening between the

outsetting flanges e^1 and the bottom of the base-plate, whereafter the turn-table may be rotated to one or the other of its working positions in which the track rail section b is in
 5 alinement with one or the other of the associate two adjacent rail sections forming part of the diamond and the corresponding rail section c .

By the construction that has just been
 10 described, no retaining member, in addition to the base-plate e , need be provided for holding the turn-table a in position. Moreover, by the construction illustrated, the turn-table is prevented from rocking upon
 15 its base-plate, as the vehicle wheels (the car or locomotive wheels) enter upon and leave engagement with the turn-table supporting the rail section b . Figs. 2 and 7 best illustrate the construction by which the rocking
 20 action of the turn-table upon its base-plate is minimized. Each base-plate e is provided with an enlarged foundation element e^2 , which is adapted to be spiked to the ties f that underlie the rail sections that form the
 25 diamond. In accordance with another feature of my invention, these base enlargements e^2 are provided with four radial openings g that extend from the outer peripheries of the base enlargements e^2 to
 30 points that are contiguous to the portion of the base-plate e that underlies the turn-table a . The inner ends of the slots g preferably terminate, say, an eighth of an inch outside of the portion of each base-plate structure
 35 that underlies the corresponding turn-table to prevent the stationary rail sections from engaging the turn-table. The slots g are wide enough to receive the webs of the stationary rail sections c and the rails that
 40 form the diamond of the crossing and the portions of the base enlargement e^2 that margin the slots g are deflected upwardly, as indicated most clearly in Figs. 3 and 5, so that the lower surfaces of the portions of
 45 the base enlargement e^2 that margin the slots g will be substantially parallel with the upper surfaces of the rail flanges, the spaces intervening between the metal that margins the slots g and the ties f being sufficient to permit of the snug fit of the bases
 50 of the engaged rail sections between the base enlargements e^2 and the ties.

In addition to the structural characteristics that have just been described, I also
 55 preferably employ clamping-plates h that intervene between the head of each rail section that enters a slot g and the flanges of such rail section, these clamping-plates having their upper and lower edges converging
 60 toward the web of the rail, whereby these clamping-plates may, when subjected to pressure exerted by the clamping-bolts i , be firmly wedged between the heads of the rail section and the raised portions of the
 65 base enlargements e^2 that margin the corre-

sponding openings g , whereby the flange of the particular rail section is moved into tight engagement with the said portions that margin the particular slot g . This construction prevents creepage between the base
 70 plate enlargements and the rail sections that are thus clamped into engagement therewith.

As has been stated, the slots g terminate at their inner ends a short distance (say, one-eighth of an inch) outside of that portion of the base-plate structure which underlies the turn-table a . This portion of the base-plate structure that underlies the turn-table a rests at all points upon the underlying tie portions f .
 75

In accordance with another feature of my invention, I provide in the nether side of the turn-table, a depression of peculiar formation for the purpose of cooperating with the operating lever mechanism, to shift the
 80 turn-table to its alternative working positions. For the purpose of automatically checking the results of the movements of the operating levers, each turn-table is desirably provided with two such depressions
 85 in its nether surface, as will appear. These depressions are indicated at k in Figs. 4 and 6, where each depression is shown as being provided with intersecting surfaces k^1 , the angle corresponding with the angle through
 90 which the turn-table is adapted to be swung; and inasmuch as the invention is shown in connection with a crossing where the tracks intersect at right-angles, the angles intervening between the surfaces k^1 are also at
 95 right-angles. If the turn-table is to be swung through a lesser angle than ninety degrees, obviously, the angle between the surfaces k^1 will be correspondingly greater than ninety degrees. If the turn-table
 100 swing through an angle greater than ninety degrees, the angle intervening between the surfaces k^1 will be correspondingly less than ninety degrees. An actuating pin l is permanently located within each depression k
 105 and is mounted upon a bar m that is preferably confined to straight line movement, the outer ends of the bars m being connected with suitable lever mechanism, such as is suggested at n . Each depression or slot k
 110 is so shaped that when the turn-table is in either of its alternative working positions, the pin l will be snugly engaged by walls of said depression or slot k , as indicated in
 115 Fig. 6, for example, whereby the turn-table is locked in either of its working positions. Each depression k is further so shaped that when the engaging pin l is moving from one to the other of its alternative extreme positions, the turn-table will be so engaged by
 120 said pin as to be rotated thereby through the predetermined angle. In other words, each depression k is preferably trifurcated, two of the branches having the surfaces k^1 and being constructed snugly to engage the pin l
 125 130

for the purpose of holding the turn-table in adjustment, while the remaining branch permits of the proper play of the pin l therein, so that said pin may turn the turn-table and in its turning movement, may be directed into one or the other of the smaller branches of the depression k that has the surface k^1 . The portion of the base-plate structure that underlies the turn-table a is provided with two slots o , where two bars m are employed, each slot containing a bar. These slots are preferably straight so as to direct the bars m in straight lines of travel. In order to increase the guiding influence upon the bars m , the base enlargement e^2 is desirably provided with guides p that are in direct line with the slots o and which are preferably in the form of ribs that enter grooved portions in the under surfaces of the bars m , as indicated clearly in Figs. 3 and 5.

It will be seen that I have provided lever mechanism for shifting the turn-table, and an enlargement for the base-plate underlying the turn-table and extending horizontally beyond the same, said enlargement taking part in guiding the portion of the lever mechanism that is in operating relation with the turn-table.

I will now describe that feature of my invention which is not to be limited to railway crossing structures that include turn-tables. In the present feature of the invention, each rail section of the diamond has a tie f underlying and extending longitudinally thereof, the tie sections being let into each other where they cross, as indicated in Figs. 1, 2, 3 and 4. By this construction each rail section of the diamond has a tie extending longitudinally thereof, whereas hitherto only two rail sections of the diamond had ties extending longitudinally thereof and the other two rail sections of the diamond had ties extending cross-wise thereof, spaces hitherto intervening between the ties where these two latter rail sections had no support. The advantages of my construction in this particular will be readily understood by those skilled in the art.

While I have herein shown and particularly described the preferred embodiment of my invention, I do not wish to be limited to the precise details of construction shown, as changes may readily be made without departing from the spirit of my invention.

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

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, said turn-table and base-plate having flange formations, spaces intervening between the flange formations and the elements carrying the

same, such space provided upon the turn-table receiving the flange formation provided upon the base-plate and such space provided upon the base-plate receiving the flange formation provided upon the turn-table.

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, said turn-table and base-plate each having a plurality of flange portions, spaces intervening between the flange portions and the elements carrying the same, such space provided upon the turn-table receiving the flange portions provided upon the base-plate, and such space provided upon the base-plate receiving the flange portions provided upon the turn-table, the spaces intervening between the flange portions provided upon the base-plate being of sufficient extent to permit the insertion of the flange portions carried by the turn-table therebetween, in order that the flange portions upon both turn-table and base-plate may enter their flange-receiving spaces.

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, said turn-table and base-plate having flange formations at their peripheries, spaces intervening between the flange formations and the elements carrying the same, such space provided upon the turn-table receiving the flange formation provided upon the base-plate and such space provided upon the base-plate receiving the flange formation provided upon the turn-table.

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, said turn-table and base-plate each having a plurality of flange portions at their peripheries, spaces intervening between the flange portions and the elements carrying the same, such space provided upon the turn-table receiving the flange portions provided upon the base-plate, and such space provided upon the base-plate receiving the flange portions provided upon the turn-table, the spaces intervening between the flange portions provided upon the base-plate being of sufficient extent to permit the insertion of the flange portions carried by the turn-table therebetween, in order that the flange portions upon both turn-table and base-plate may enter their flange-receiving spaces.

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, an enlargement for the base-plate underlying the turn-table and extending horizontally be-

yond the same, said enlargement having rail web-receiving slots or grooves therein, clamping plates intervening between the heads of the rails and the portions of the
 5 base enlargement margining said grooves or slots, and clamping devices for forcing said clamping plates toward the webs of the rails.

6. A railroad crossing structure including
 10 a base-plate, a turn-table mounted thereon and carrying a rail section adapted for alinement with track rail sections, an enlargement for the base-plate underlying the turn-table and extending horizontally be-
 15 yond the same, said enlargement having rail web-receiving slots or grooves therein, said slots or grooves terminating short of the turn-table to prevent the rail sections contained therein from having engagement
 20 with the turn-table, clamping plates intervening between the heads of the rails and the portions of the base enlargement margining said grooves or slots, and clamping devices for forcing said clamping plates to-
 25 ward the webs of the rails.

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 an
 30 enlargement for the base-plate underlying the turn-table and extending horizontally beyond the same, said enlargement having rail web-receiving slots or grooves therein, the portions of the base enlargement that
 35 margin said slots or grooves sloping to conform with the slopes of the upper surfaces of the rail flanges.

8. A railroad crossing structure including a base-plate, a turn-table mounted thereon
 40 and carrying a rail section adapted for alinement with track rail sections, and an enlargement for the base-plate underlying the turn-table and extending horizontally beyond the same, said enlargement having
 45 rail web-receiving slots or grooves therein, said slots or grooves terminating short of the turn-table to prevent the rail sections contained therein from having engagement with the turn-table, the portions of the base
 50 enlargement that margin said slots or grooves sloping to conform with the slopes of the upper surfaces of the rail flanges.

9. A railroad crossing structure including a base-plate, a turn-table mounted thereon
 55 and carrying a rail section adapted for alinement with track rail sections, and an enlargement for the base-plate underlying the turn-table and extending horizontally beyond the same, said enlargement having rail
 60 web-receiving slots or grooves therein, said slots or grooves terminating short of the turn-table to prevent the rail sections contained therein from having engagement with the turn-table, the portions of the base en-
 65 largement that margin said slots or grooves

sloping to conform with the slopes of the upper surfaces of the rail flanges, the lower portions of said clamping plates also engag-
 ing the sloping portions that margin said slots or grooves.

10. A railroad crossing structure includ-
 ing a base-plate, a turn-table mounted there-
 on and carrying a rail section adapted for
 alinement with track rail sections, an en-
 largement for the base-plate underlying the
 turn-table and extending horizontally be-
 yond the same, said enlargement having rail
 web-receiving slots or grooves therein,
 clamping plates intervening between the
 heads of the rails and the portions of the
 base enlargement margining said grooves
 or slots, and clamping devices for forcing
 said clamping plates toward the webs of the
 rails, the portions of the base enlargement
 that margin said slots or grooves sloping to
 conform with the slopes of the upper sur-
 faces of the rail flanges, the lower portions
 of said clamping plates also engaging the
 sloping portions that margin said slots or
 grooves.

11. A railroad crossing structure includ-
 ing a base-plate having rail web-receiving
 slots or grooves, stationary rail sections
 whose webs enter said slots or grooves,
 clamping plates intervening between the
 webs of the rails and the portions of the
 base enlargement margining said grooves or
 slots, and clamping devices for forcing said
 clamping plates toward the webs of the rails.

12. A railroad crossing structure includ-
 ing a base-plate having rail web-receiving
 slots or grooves, stationary rail sections
 whose webs enter said slots or grooves,
 clamping plates intervening between the
 webs of the rails and the portions of the
 base enlargement margining said grooves or
 slots, and clamping devices for forcing said
 clamping plates toward the webs of the rails,
 the portions of the base enlargement that
 margin said slots or grooves sloping to con-
 form with the slopes of the upper surfaces
 of the rail flanges, the lower portions of
 said clamping plates also engaging the slop-
 ing portions that margin said slots or
 grooves.

13. A railroad crossing structure includ-
 ing a base-plate, a turn-table mounted there-
 on and carrying a rail section adapted for
 alinement with track rail sections, said turn-
 table having a trifurcated guiding portion
 and lever mechanism in engagement with
 said guiding portion to effect the rotation
 of the turn-table.

14. A railroad crossing structure includ-
 ing a base-plate, a turn-table mounted there-
 on and carrying a rail section adapted for
 alinement with track rail sections, said turn-
 table having a trifurcated guiding portion
 and lever mechanism in engagement with
 said guiding portion to effect the rotation of

the turn-table, said lever mechanism having a projection in engagement with said guiding portion and also coöperating with said guiding portion to hold the turn-table in either of its alternative working positions.

15 15. 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, said turn-
10 table having a trifurcated depression in its nether surface, and lever mechanism carrying a pin having snug engagement with the opposite walls of two of the branches of said depression, to hold the turn-table in either
15 of its alternative positions, said pin being adapted to enter the third branch of said depression to effect the rotation of the turn-table toward either of its alternative positions.

20 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, said turn-table having a trifurcated depression in its

nether surface, lever mechanism carrying a 25 pin having snug engagement with the opposite walls of two of the branches of said depression, to hold the turn-table in either of its alternative positions, said pin being adapted to enter the third branch of said 30 depression to effect the rotation of the turn-table toward either of its alternative positions, and means whereby the pin is confined to straight line travel.

17. A railroad track structure including a 35 base plate having rail web receiving slots or grooves, stationary rail sections whose webs enter said slots or grooves, and clamping plates intervening between the webs of the rails and the flanges thereof. 40

In witness whereof, I hereunto subscribe my name this 3d day of September A. D., 1909.

MARSHALL F. HOLMES.

Witnesses:

LEON G. STROH,
G. L. CRAGG.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."